TABLE OF LAPLACE TRANSFORMS

by

G. E. ROBERTS
SENIOR MEMBER SCIENTIFIC STAFF
RCA VICTOR COMPANY, LTD.

and

H. KAUFMAN
PROFESSOR OF MATHEMATICS
MCGILL UNIVERSITY

W. B. SAUNDERS COMPANY
Philadelphia and London

to

Mary and Sylvia

Table of Laplace Transforms

 Press of W. B. Saunders Company. Library of Congress catalog card number 65-23098.

PREFACE

The motivation for the present work lies in our belief that an ideal collection of Laplace transforms should combine the following features: comprehensiveness, a statement of validity conditions on the parameters, a tabulation of both direct and inverse transforms, and an effective key to the individual entries. We have been particularly concerned with the construction of a simple but effective indexing system. A detailed description of this system is given immediately following the table of contents.

We define the Laplace transform $g(s)$ of a function $f(t)$ by the integral

$$g(s) = \int_0^\infty e^{-st} f(t)\,dt$$

where s is a complex variable. The function $f(t)$ is referred to as the inverse Laplace transform of $g(s)$.

The inversion integral, expressing $f(t)$ in terms of $g(s)$, is given by

$$f(t) = \frac{1}{2\pi i} \int_{c-i\infty}^{c+i\infty} g(s) e^{st}\,ds$$

where $g(s)$ is analytic in the half-plane $\mathrm{Re}\, s \geqslant c$.

Our debt to the major collections of Erdelyi,[1] Doetsch,[2] McLachlan and Humbert,[3] and McLachlan, Humbert and Poli[4] will be apparent; other sources were Gardner and Barnes,[5] Nixon,[6] and Doetsch.[7] New transforms given by Poli,[8] Klamkin,[9] and Ragab[10, 11] have also been incorporated. We have omitted transforms of Mathieu functions, a topic which is adequately covered in reference 4. Although it was impossible to rederive every entry, great care was taken to crosscheck entries and to eliminate errors and inconsistencies. Since it is too much to hope that none of the latter remain, we shall be grateful to our readers for bringing any errors to our attention.

We wish to express our thanks to the RCA Victor Company, Ltd., for their unstinted cooperation and to Mrs. Shirley Pierrepoint for undertaking the arduous task of typing the manuscript.

G. E. Roberts
H. Kaufman

REFERENCES

1. Erdelyi, A. (Editor), Tables of Integral Transforms, Vol. I (McGraw-Hill, 1954).
2. Doetsch, G., Tabellen zur Laplace-Transformation und Anleitung zum Gebrauch (Springer, 1947).
3. McLachlan, N. W., and Humbert, P., Formulaire pour le calcul symbolique, Mémorial des Sciences Mathématiques, Fascicule 100 (Gauthier-Villars, 1950).
4. McLachlan, N. W., Humbert, P., and Poli, L., Supplement au formulaire pour le calcul symbolique, Mémorial des Sciences Mathématiques, Fascicule 103 (Gauthier-Villars, 1950).
5. Gardner, M. F., and Barnes, J. L., Transients in Linear Systems (Wiley, 1947).
6. Nixon, F. E., Handbook of Laplace Transformation (Prentice-Hall, 1960).
7. Doetsch, G., Guide to the Applications of Laplace Transforms (Van Nostrand, 1961).
8. Poli, L., Quelques images symboliques, Annales de la Soc. Sci. Bruxelles (1), Vol. 68, 13-22, (1954).
9. Klamkin, M. S., An Application of the Gauss Multiplication Theorem, Amer. Math. Monthly, Vol. 64, 661-663 (1957).
10. Ragab, F. M., The Inverse Laplace Transform of an Exponential Function, Comm. Pure and Appl. Math., Vol. 11, 115-127, (1958).
11. Ragab, F. M., The Inverse Laplace Transform of the Product

$$\exp[-\tfrac{1}{2} a^{1/n} p^{1/n}] K_{n\nu}[\tfrac{1}{2} a^{1/n} p^{1/n}], n = 2,3,4,\ldots,$$

Boll. Un. Mat. Ital. (3), Vol. 19, 26-30 (1964).

CONTENTS

HOW TO USE THE BOOK

The book consists of two parts: Part I, Direct Transforms, and Part II, Inverse Transforms.

Each part is again divided into two sections. Section 1 of each part is a table of operations. The operations are grouped into convenient subsections with self-explanatory titles and are serially numbered for reference purposes. By means of the operations many transform pairs not listed in this book may be derived.

Section 2 of each part, comprising the bulk of this book, is a list of transform pairs. They are arranged in order according to an indexing system which will enable any particular entry to be quickly located. The indexing system applies to both the direct and inverse transform pairs.

All mathematical functions occurring in the transforms have been divided into 37 categories as shown in the Function Index, each category having a code number. To find a particular entry in the tables, select all the code numbers corresponding to the functional forms in the entry of interest and arrange them in descending numerical order. Look up this combined code number directly in the tables and select the required transform pair from those listed. Under each combined code number, transform pairs are given a serial number for reference.

"Function" as used here refers to a function of t in the direct transform pairs and s in the inverse transform pairs. There is one exception. When the function is given as an integral,

$$\text{i.e.} \quad \int f(u,t)\,du \ \text{or} \int f(u,s)\,du$$

the coding of the entry is based on f considered as a function of u, with t and s being treated only as parameters (see example 6 following).

The user is advised to become familiar with the code numbers of the 37 categories, or at least with the more commonly used ones, as this will greatly facilitate the efficient use of the coding system.

The expressions *at* or *as*, although strictly rational algebraic functions, are not considered as such in the present context because they occur as basic quantities in all transforms and would invalidate the use of code number 1. Some examples follow.

Example 1. $f(t) = \frac{t^{\nu}}{t+a}$ has code number 2.1 since t^{ν} is in category 2 and $t+a$ is in category 1.

Example 2. $f(t) = e^{-at}$ has code number 3 since e^{-at} is in category 3 and $-at$ is not considered as a rational function.

HOW TO USE THE BOOK

Example 3. $g(s) = \frac{1}{s^\nu} \operatorname{cosech}(as)\, I_\nu(as)$ has code number 12.7.2 since $I_\nu(as)$ is in category 12, cosech(as) is in category 7 and $\frac{1}{s^\nu}$ is in category 2.

Example 4. $f(t) = \begin{cases} 1 & na < t < na+b \\ 0 & na+b < t < (n+1)a \quad n = 0,1,2,\ldots \end{cases}$

has code number 35 since it is piecewise defined.

Example 5. $f(t) = \begin{cases} 0 & 0 < t < b \\ \left(\frac{t-b}{t+b}\right)^{\frac{\nu}{2}} e^{-(a+b)t} I_\nu[a(t^2-b^2)^{\frac{1}{2}}] & t > b \end{cases}$

has code number 36.12.3.2 since it is a delayed function, category 36, $I_\nu[a(t^2-b^2)^{\frac{1}{2}}]$ is in category 12, $e^{-(a+b)t}$ is in category 3, and $\left(\frac{t-b}{t+b}\right)^{\frac{\nu}{2}}$ and $a(t^2-b^2)^{\frac{1}{2}}$ are both in category 2.

Example 6. $f(t) = \int_0^{at} \frac{\sinh u}{u}\, du$ has code number 7 since sinh u is in category 7.

For convenience of reference, functions of the form $|f(t)|$ are placed both in the category corresponding to f(t) and in the category of piecewise defined functions (35).

Example 7. $|\cos(at)|$ has code numbers 5 and 35.5.

In Part II, Section 2, a large number of functions fall into code 1, polynomials in s. In this category the entries have been arranged under a special subcoding system which is explained at the start of Part II, Section 2.

In the case of a few categories containing a large number of entries, some descriptive subheadings have been introduced as guides.

FUNCTION INDEX

Note: In the Function Index, x is to be considered as any function of t in the direct transforms or of s in the inverse transforms. The symbol y stands for t in the direct transforms and for s in the inverse transforms.

Code Number	Types of Functions
1.	RATIONAL ALBEGRAIC FUNCTIONS
	$\frac{P(y)}{Q(y)}$ where P(y) and Q(y) are polynomials in y.
	$\delta(y)$ and 1 are also included in this category.
2.	IRRATIONAL ALBEGRAIC FUNCTIONS
	$[P(y)]^\nu$ where P(y) is a polynomial in y and ν is not an integer.
3.	EXPONENTIAL FUNCTIONS
	e^x a^x
4.	LOGARITHMIC FUNCTIONS
	$\log_b x$ where b is any base.
5.	TRIGONOMETRIC FUNCTIONS
	sin x cos x tan x cosec x sec x cot x
6.	INVERSE TRIGONOMETRIC FUNCTIONS
	$\sin^{-1} x$ $\cos^{-1} x$ $\tan^{-1} x$ $\operatorname{cosec}^{-1} x$ $\sec^{-1} x$ $\cot^{-1} x$

FUNCTION INDEX

Code Number	Types of Functions
7.	HYPERBOLIC FUNCTIONS
	$\sinh x$ $\cosh x$ $\tanh x$ $\mathrm{cosech}\, x$ $\mathrm{sech}\, x$ $\coth x$
8.	INVERSE HYPERBOLIC FUNCTIONS
	$\sinh^{-1} x$ $\cosh^{-1} x$ $\tanh^{-1} x$ $\mathrm{cosech}^{-1} x$ $\mathrm{sech}^{-1} x$ $\cosh^{-1} x$
9.	POLYNOMIALS
	$A_n(x)$ $A_{n,\nu}(x)$ $A_n(a,x)$ $C_n^{\nu}(x)$ $He_n(x)$
	$H_n(x)$ $L_n(x)$ $L_n^a(x)$ $O_o(x)$ $O_n(x)$
	$\Omega_n(x)$ $P_n(x)$ $P_n^{a,b}(x)$ $p_n(a;x)$ $Q_n(x)$
	$S_n(x)$ $T_a^{(n)}(x)$ $T_n(x)$ $U_n(x)$
10.	BESSEL FUNCTIONS
	$J_\nu(x)$ $Y_\nu(x)$
11.	HANKEL FUNCTIONS
	$H_\nu^{(1)}(x)$ $H_\nu^{(2)}(x)$
12.	MODIFIED BESSEL FUNCTIONS
	$I_\nu(x)$
13.	MODIFIED HANKEL FUNCTIONS
	$K_\nu(x)$
14.	ELLIPTIC INTEGRALS
	$B(x)$ $D(x)$ $E(x)$ $F(x)$ $G(x)$ $K(x)$
15.	THETA FUNCTIONS
	$\theta_1(\nu\|x)$ $\theta_2(\nu\|x)$ $\theta_3(\nu\|x)$ $\theta_4(\nu\|x)$
	$\hat\theta_1(\nu\|x)$ $\hat\theta_2(\nu\|x)$ $\hat\theta_3(\nu\|x)$ $\hat\theta_4(\nu\|x)$

FUNCTION INDEX

Code Number	Types of Functions
16.	ERROR FUNCTIONS
	$\mathrm{Erf}(x)$ $\mathrm{Erfc}(x)$
17.	FRESNEL INTEGRALS
	$C(x)$ $S(x)$
18.	SINE AND COSINE INTEGRALS
	$\mathrm{Ci}(x)$ $\mathrm{ci}(x)$ $\mathrm{Si}(x)$ $\mathrm{si}(x)$
19.	EXPONENTIAL INTEGRALS
	$\mathrm{Ei}(-x)$ $\overline{\mathrm{Ei}}(x)$
20.	LOGARITHMIC INTEGRALS
	$\mathrm{li}(x)$
21.	GAMMA FUNCTIONS AND RELATED FUNCTIONS
	$B(x,a)$ $\Gamma(x)$ $\Gamma(a,x)$ $\gamma(a,x)$ $\binom{x}{a}$
	$\psi(x)$ $\psi^{(n)}(x)$
22.	ZETA FUNCTIONS
	$\zeta(x)$ $\zeta(a,x)$ $\zeta'(x)$
23.	LEGENDRE FUNCTIONS
	$P_\nu^\mu(x)$ $Q_\nu^\mu(x)$ $P_\nu(x)$ $Q_\nu(x)$
24.	KELVIN FUNCTIONS AND RELATED FUNCTIONS
	$\mathrm{ber}_\nu(x)$ $\mathrm{ber}(x)$ $\mathrm{bei}_\nu(x)$ $\mathrm{bei}(x)$
	$\mathrm{ker}_\nu(x)$ $\mathrm{ker}(x)$ $\mathrm{kei}_\nu(x)$ $\mathrm{kei}(x)$
	$V_\nu^{(b)}(x)$ $W_\nu^{(b)}(x)$ $X_\nu^{(b)}(x)$ $Z_\nu^{(b)}(x)$

Code Number	Types of Functions
25.	STRUVE FUNCTIONS
	$H_\nu(x)$ $L_\nu(x)$
26.	ANGER-WEBER FUNCTIONS
	$J_\nu(x)$ $E_\nu(x)$
27.	PARABOLIC CYLINDER FUNCTIONS
	$D_\nu(x)$ $D_n(x)$
28.	LOMMEL FUNCTIONS
	$s_{\mu,\nu}(x)$ $S_{\mu,\nu}(x)$ $U_\nu(x,a)$ $V_\nu(x,a)$
29.	BESSEL INTEGRAL FUNCTIONS
	$Ii_\nu(x)$ $Ji_\nu(x)$ $Ki_\nu(x)$ $Yi_\nu(x)$
30.	CONFLUENT HYPERGEOMETRIC FUNCTIONS
	${}_1F_1[a;c;x]$ $k_\nu(x)$ $M_{\mu,\nu}(x)$ $W_{\mu,\nu}(x)$
	$\Phi_1(a,b,c;x,z)$ $\Phi_2(a,b,c;x,z)$ $\Phi_2(b_1,\ldots,b_n;c;x_1,\ldots,x_n)$
	$\Phi_3(b,c;x,z)$ $\Psi_1(a,b,c,d;x,z)$ $\Psi_2(a,c,d;x,z)$
	$\Psi_2(a;b_1,\ldots,b_n;x_1,\ldots,x_n)$ $\Xi_1(a,b,c,d;x,z)$ $\Xi_2(a,b,c;x,z)$
31.	HYPERGEOMETRIC FUNCTIONS
	${}_2F_1[a,b;c;x]$ $F_1(a;b,c;d;x,z)$ $F_2(a;b,c;d,e;x,z)$
	$F_3(a,b,c,d;e;x,z)$ $F_4(a,b;c,d;x,z)$

Code Number	Types of Functions
32.	GENERALIZED HYPERGEOMETRIC FUNCTIONS
	${}_pF_q\left[\begin{matrix}(a)_p\,; \\ (b)_q\,;\end{matrix}\ x\right] = {}_pF_q\left[\begin{matrix}a_1,\ldots,a_p\,; \\ b_1,\ldots,b_p\,;\end{matrix}\ x\right]$
	$E(m;a_i:n;b_j:x) = E(a_1,\ldots,a_m:b_1,\ldots,b_n:x)$
	$S_n(a_1,a_2,a_3,a_4;x)$
	$F_A(a;b_1,\ldots,b_n;c_1,\ldots,c_n;x_1,\ldots,x_n)$
33.	WINDOW FUNCTIONS
	All functions which are zero outside a finite time (t) interval.
34.	JUMP FUNCTIONS
	$\left[f(t) = f(n) \quad n < t < n+1 \quad n = 0,1,2,\ldots \right.$
35.	PIECEWISE DEFINED FUNCTIONS
	Functions defined by different functional forms over different ranges of the variable (t) (excluding those which fall into category 33 or 34).
36.	DELAYED FUNCTIONS
	Functions which are zero for $-\infty < t < b$ where b is positive (excluding those which fall into category 33 or 34).
37.	MISCELLANEOUS FUNCTIONS
	$Cih(x)$ $I(a,b;x)$ $J_n^m(x)$ $Q^{\mu,\nu}(x)$ $S(\nu,x)$
	$U^{m,n}(x)$ $V_n(x)$ $\mu(x,a)$ $\nu(x)$ $\nu(x,a)$

FUNCTION DEFINITIONS

$A_n(x)$	Appell polynomial	Defined by $e^{-x}(1+xu)^{\frac{1}{u}} = \sum_{n=0}^{\infty} (-1)^n A_n(x) u^n$
$A_n(a,x)$	Rainville polynomial	$= {}_2F_0[-n, n+a; \ ; x] \quad n = 0,1,2,\ldots$
$A_{n,\nu}(x)$	Gegenbauer polynomial	Defined by $\frac{u^\nu}{x-u} = \sum_{n=0}^{\infty} A_{n,\nu}(x) J_{\nu+n}(u)$
$B(x)$	Elliptic integral	$= \int_0^{\frac{\pi}{2}} \frac{\cos^2\theta \, d\theta}{(1 - x^2 \sin^2\theta)^{\frac{1}{2}}}$
$B(x,a)$	Beta function	$= \frac{\Gamma(x)\Gamma(a)}{\Gamma(x+a)}$
$bei(x)$	Kelvin function	$bei_0(x)$
$bei_\nu(x)$	Kelvin function	$= \frac{1}{2i}[J_\nu(xe^{\frac{3\pi i}{4}}) - J_\nu(xe^{-\frac{3\pi i}{4}})]$
$ber(x)$	Kelvin function	$ber_0(x)$
$ber_\nu(x)$	Kelvin function	$= \frac{1}{2}[J_\nu(xe^{\frac{3\pi i}{4}}) + J_\nu(xe^{-\frac{3\pi i}{4}})]$

$C(x)$	Fresnel integral	$= \dfrac{1}{(2\pi)^{\frac{1}{2}}}\displaystyle\int_0^x \dfrac{\cos u\,du}{u^{\frac{1}{2}}}$
$C_n^{\nu}(x)$	Gegenbauer polynomial	$= \dfrac{(-2)^n(\nu)_n}{n!(n+2\nu)_n}(1-x^2)^{\frac{1}{2}-\nu}\dfrac{d^n}{dx^n}(1-x^2)^{n+\nu-\frac{1}{2}}$ $\quad n=0,1,2,\ldots$
$Ci(x)$	Cosine integral	$= -\displaystyle\int_x^{\infty}\dfrac{\cos u\,du}{u}$
$ci(x)$	Cosine integral	$= \displaystyle\int_x^{\infty}\dfrac{\cos u\,du}{u}$
$Cih(x)$	Hyperbolic cosine integral	$= \gamma + \log x + \displaystyle\int_0^x \dfrac{\cosh u - 1}{u}\,du$
$D(x)$	Elliptic integral	$= \displaystyle\int_0^{\frac{\pi}{2}} \dfrac{\sin^2\theta\,d\theta}{(1-x^2\sin^2\theta)^{\frac{1}{2}}}$
$D_n(x)$	Parabolic cylinder function	$= (-1)^n e^{\frac{x^2}{4}}\dfrac{d^n}{dx^n}\left(e^{-\frac{x^2}{2}}\right)$ $\quad n=0,1,2,\ldots$
$D_{\nu}(x)$	Parabolic cylinder function	$= \dfrac{2^{\frac{\nu}{2}+\frac{1}{4}}}{x^{\frac{1}{2}}} W_{\frac{\nu}{2}+\frac{1}{4},\frac{1}{4}}\left(\dfrac{x^2}{2}\right)$
$E(x)$	Elliptic integral	$= \displaystyle\int_0^{\frac{\pi}{2}} (1-x^2\sin^2\theta)^{\frac{1}{2}}\,d\theta$
$E_{\nu}(x)$	Weber function	$= \dfrac{1}{\pi}\displaystyle\int_0^{\pi}\sin(\nu\theta - x\sin\theta)\,d\theta$

$E(m;a_i:n;b_j:x)$

$E(a_1,\ldots,a_m:b_1,\ldots,b_n:x)$ (MacRobert's E-function)

$$= \sum_{i=1}^{m} \frac{\prod_{j=1}^{m}{}^{*}\,\Gamma(a_j-a_i)}{\prod_{k=1}^{n}\Gamma(b_k-a_i)}\,\Gamma(a_i)x^{a_i}\;{}_{n+1}F_{m-1}\left[\begin{matrix}a_i,a_i-b_1+1,\ldots,a_i-b_n+1;\\ a_i-a_1+1,\ldots,{}^{*},\ldots,a_i-a_m+1;\end{matrix}(-1)^{m+n}x\right]$$

if $m \geq n+1$, with $|x| < 1$ if $m = n+1$;

$$= \frac{\prod_{i=1}^{m}\Gamma(a_i)}{\prod_{j=1}^{n}\Gamma(b_j)}\;{}_mF_n\left[\begin{matrix}a_1,\ldots,a_m;\\ b_1,\ldots,b_n;\end{matrix}\,-\frac{1}{x}\right] \qquad (x \neq 0)$$

if $m \leq n+1$, with $|x| > 1$ if $m = n+1$.

The asterisks denote that the term containing $a_i - a_i$ corresponding to $j = i$ is to be omitted.

$Ei(-x)$	Exponential integral	$= -\displaystyle\int_x^{\infty} e^{-u}\dfrac{du}{u}$ $\quad -\pi < \arg x < \pi$
$\overline{Ei}(x)$	Exponential integral	$= \dfrac{1}{2}[Ei(x+i0) + Ei(x-i0)]$ $\quad x > 0$
$Erf(x)$	Error function	$= \dfrac{2}{\pi^{\frac{1}{2}}}\displaystyle\int_0^x e^{-u^2}du$
$Erfc(x)$	Complementary error function	$= \dfrac{2}{\pi^{\frac{1}{2}}}\displaystyle\int_x^{\infty} e^{-u^2}du$
$F(x,a)$	Incomplete elliptic integral	$= \displaystyle\int_0^a \dfrac{d\theta}{(1-x^2\sin^2\theta)^{\frac{1}{2}}}$
${}_1F_1[a;c;x]$	Kummer function	$= \displaystyle\sum_{n=0}^{\infty}\dfrac{(a)_n}{(c)_n}\dfrac{x^n}{n!}$

${}_2F_1[a,b;c;x]$	Gauss hypergeometric function	$= \sum_{n=0}^{\infty} \frac{(a)_n (b)_n}{(c)_n} \frac{x^n}{n!}$
${}_pF_q\left[\begin{matrix}(a)_p ; \\ (b)_q ;\end{matrix} x\right]$, ${}_pF_q\left[\begin{matrix}a_1,\ldots,a_p ; \\ b_1,\ldots,b_q ;\end{matrix} x\right]$	Hypergeometric function	$= \sum_{n=0}^{\infty} \frac{(a_1)_n \ldots (a_p)_n}{(b_1)_n \ldots (b_q)_n} \frac{x^n}{n!}$

$F_A(a;b_1,\ldots,b_n;c_1,\ldots,c_n;x_1,\ldots,x_n)$ Generalized hypergeometric function

$$= \sum \frac{(a)_{m_1+\ldots+m_n} (b_1)_{m_1} \ldots (b_n)_{m_n}}{(c_1)_{m_1} \ldots (c_n)_{m_n} m_1! \ldots m_n!} x_1^{m_1} \ldots x_n^{m_n}$$

where $\sum$ represents an n-fold summation in $m_1,\ldots,m_n$, each running from 0 to ∞.

$F_1(a;b,c;d;x,z)$	Hypergeometric function of two variables	$= \sum_{m,n=0}^{\infty} \frac{(a)_{m+n}(b)_m(c)_n}{(d)_{m+n} m! n!} x^m z^n$
$F_2(a;b,c;d,e;x,z)$	Hypergeometric function of two variables	$= \sum_{m,n=0}^{\infty} \frac{(a)_{m+n}(b)_m(c)_n}{(d)_m(e)_n m! n!} x^m z^n$
$F_3(a,b,c,d;e;x,z)$	Hypergeometric function of two variables	$= \sum_{m,n=0}^{\infty} \frac{(a)_m(b)_n(c)_m(d)_n}{(e)_{m+n} m! n!} x^m z^n$
$F_4(a,b;c,d;x,z)$	Hypergeometric function of two variables	$= \sum_{m,n=0}^{\infty} \frac{(a)_{m+n}(b)_{m+n}}{(c)_m(d)_n m! n!} x^m z^n$
$G(x)$	Elliptic integral	$= \int_0^{\frac{\pi}{2}} \frac{\sin^2\theta \cos^2\theta}{(1-x^2\sin^2\theta)^{\frac{3}{2}}} d\theta$
$H_n(x)$	Hermite polynomial	$= (-1)^n e^{x^2} \frac{d^n}{dx^n} e^{-x^2} \quad n=0,1,2,\ldots$

$H_\nu(x)$	Struve function	$= \sum_{n=0}^{\infty} \frac{(-1)^n (\frac{x}{2})^{\nu+2n+1}}{\Gamma(n+\frac{3}{2})\Gamma(\nu+n+\frac{3}{2})}$
$H_\nu^{(1)}(x)$	Hankel function	$= J_\nu(x) + i\, Y_\nu(x)$
$H_\nu^{(2)}(x)$	Hankel function	$= J_\nu(x) - i\, Y_\nu(x)$
$He_n(x)$	Hermite polynomial	$= (-1)^n e^{\frac{x^2}{2}} \frac{d^n}{dx^n} (e^{-\frac{x^2}{2}}) \quad n=0,1,2,\ldots$
$I(a,b;x)$	J. C. Jaeger, Proc. Roy. Soc. Edin. A, v.61, 1941-43.	$= \int_0^\infty \frac{e^{-x u^2}}{[auJ_1(u)+bJ_0(u)]^2+[auY_1(u)+bY_0(u)]^2} \frac{du}{u}$
$I_\nu(x)$	Modified Bessel function	$= \sum_{n=0}^{\infty} \frac{(\frac{x}{2})^{\nu+2n}}{n!\Gamma(\nu+n+1)}$
$Ii_\nu(x)$	Bessel integral function	$= \int_x^\infty I_\nu(u) \frac{du}{u}$
$J_n^m(x)$	Bourget function	$= \frac{1}{\pi} \int_0^\pi (2\cos\theta)^m \cos(n\theta - x\sin\theta)\, d\theta$
$J_\nu(x)$	Bessel function	$= \sum_{n=0}^{\infty} \frac{(-1)^n (\frac{x}{2})^{\nu+2n}}{n!\Gamma(\nu+n+1)}$
$\mathbf{J}_\nu(x)$	Anger function	$= \frac{1}{\pi} \int_0^\pi \cos(\nu\theta - x\sin\theta)\, d\theta$
$Ji_\nu(x)$	Bessel integral function	$= \int_x^\infty J_\nu(u) \frac{du}{u}$
$K(x)$	Elliptic integral	$= \int_0^{\frac{\pi}{2}} \frac{d\theta}{(1-x^2\sin^2\theta)^{\frac{1}{2}}}$

$K_\nu(x)$	Modified Hankel function	$= \frac{\pi}{2} \cdot \frac{I_{-\nu}(x) - I_\nu(x)}{\sin(\nu\pi)}$
$k_\nu(x)$	Bateman function	$= \dfrac{W_{\frac{\nu}{2},\frac{1}{2}}(2x)}{\Gamma(\frac{\nu}{2}+1)}$
$\mathrm{kei}(x)$	Modified Kelvin function	$= \mathrm{kei}_0(x)$
$\mathrm{kei}_\nu(x)$	Modified Kelvin function	$= \frac{1}{2i}[K_\nu(xe^{\frac{\pi i}{4}}) - K_\nu(xe^{-\frac{\pi i}{4}})]$
$\mathrm{ker}(x)$	Modified Kelvin function	$= \mathrm{ker}_0(x)$
$\mathrm{ker}_\nu(x)$	Modified Kelvin function	$= \frac{1}{2}[K_\nu(xe^{\frac{\pi i}{4}}) + K_\nu(xe^{-\frac{\pi i}{4}})]$
$\mathrm{Ki}_\nu(x)$	Bessel integral function	$= \int_x^\infty K_\nu(u)\,\frac{du}{u}$
$L_n(x)$	Laguerre polynomial	$= L_n^0(x)$
$L_n^a(x)$	Laguerre polynomial	$= \frac{e^x}{x^a n!} \frac{d^n}{dx^n}(e^{-x}x^{n+a})$
$L_\nu(x)$	Struve function	$= e^{-(\nu+1)\frac{\pi i}{2}} H_\nu(xe^{\frac{\pi i}{2}})$
$\mathrm{li}(x)$	Logarithmic integral	$= \int_0^x \frac{du}{\log u}$
$M_{\mu,\nu}(x)$	Whittaker function	$= x^{\frac{1}{2}+\nu} e^{-\frac{x}{2}} {}_1F_1[\frac{1}{2}+\nu-\mu; 2\nu+1; x]$

$O_0(x)$	Neumann polynomial	$= \frac{1}{x}$
$O_n(x)$	Neumann polynomial	$= \frac{1}{4} \sum_{m=0}^{[\frac{n}{2}]} \frac{n(n-m-1)!}{m!(\frac{x}{2})^{n-2m+1}}$ $n = 1,2,3,\ldots$
$O_{-n}(x)$	Neumann polynomial	$= (-1)^n O_n(x)$ $n = 1,2,3,\ldots$
$P_n(x)$	Legendre polynomial	$= \frac{1}{2^n n!} \frac{d^n}{dx^n}(x^2-1)^n$ $n = 0,1,2,\ldots$
$P_n^{a,b}(x)$	Jacobi polynomial	$= \frac{(-1)^n}{2^n n!(1-x)^a(1+x)^b} \frac{d^n}{dx^n}[(1-x)^{n+a}(1+x)^{n+b}]$ $n = 0,1,2,\ldots$
$p_n(a;x)$	Charlier polynomial	$= n! a^{-n} L_n^{x-a}(a)$ $n = 0,1,2,\ldots$
$P_\nu(x)$	Legendre function	$= P_\nu^0(x)$
$P_\nu^\mu(x)$	Legendre function	$= \frac{1}{\Gamma(1-\mu)} \left(\frac{x+1}{x-1}\right)^{\frac{\mu}{2}} {}_2F_1[-\nu, \nu+1; 1-\mu; \frac{1-x}{2}]$ with x in the complex plane cut along the real axis from -1 to 1. $= \frac{1}{\Gamma(1-\mu)} \left(\frac{1+x}{1-x}\right)^{\frac{\mu}{2}} {}_2F_1[-\nu, \nu+1; 1-\mu; \frac{1-x}{2}]$ $-1 < x < 1$
$Q_n(x)$	Legendre polynomial	$= \frac{(x^2-1)^n}{2^n n!} \log \frac{x+1}{x-1} - \frac{1}{2} \log \frac{x+1}{x-1} P_n(x)$ $\lvert x \rvert > 1$
$Q_\nu(x)$	Legendre function	$= Q_\nu^0(x)$

$Q^{\mu}_{\nu}(x)$ Legendre function

$$= \frac{e^{\mu\pi i}\pi^{\frac{1}{2}}\Gamma(\mu+\nu+1)\,(x^2-1)^{\frac{\mu}{2}}}{2^{\nu+1}\Gamma(\nu+\frac{3}{2})\,x^{\mu+\nu+1}}\,{}_2F_1\left[\frac{\mu+\nu+1}{2},\frac{\mu+\nu+2}{2};\nu+\frac{3}{2};\frac{1}{x^2}\right]$$

with x in the complex plane cut along the real axis from -1 to 1.

$$= \frac{1}{2}\left[e^{-\frac{3}{2}\mu\pi i}Q^{\mu}_{\nu}(x+i0) + e^{-\frac{1}{2}\mu\pi i}Q^{\mu}_{\nu}(x-i0)\right] \qquad -1 < x < 1$$

$Q^{\mu,\nu}(x)$ Ultraspherical function

$$= \pi^{\frac{1}{2}}2^{2\mu-1}\sum_{n=0}^{\infty}\frac{\Gamma(\nu+2\mu+2n)}{n!\,\Gamma(\nu+\mu+n+1)(2x)^{\nu+2\mu+2n}}$$

$S(x)$ Fresnel integral

$$= \frac{1}{(2\pi)^{\frac{1}{2}}}\int_0^x \sin u\,\frac{du}{u^{\frac{1}{2}}}$$

$S(\nu,x)$ Schlömilch function

$$= \int_0^\infty e^{-xu}\frac{du}{(1+u)^{\nu}}$$

$S_{\mu,\nu}(x)$ Lommel function

$$= s_{\mu,\nu}(x) + 2^{\mu-1}\Gamma\left(\frac{\mu-\nu+1}{2}\right)\Gamma\left(\frac{\mu+\nu+1}{2}\right)\left[\sin\left(\frac{\mu-\nu}{2}\pi\right)J_\nu(x) - \cos\left(\frac{\mu-\nu}{2}\pi\right)Y_\nu(x)\right]$$

$s_{\mu,\nu}(x)$ Lommel function

$$= \frac{x^{\mu+1}}{(\mu-\nu+1)(\mu+\nu+1)}\,{}_1F_2\left[\begin{matrix}1\\ \frac{\mu-\nu+3}{2},\frac{\mu+\nu+3}{2}\end{matrix};-\frac{x^2}{4}\right]$$

$S_n(x)$ Schläfli polynomial

$$= \int_0^\infty e^{-xu}\left[[u+(u^2+1)^{\frac{1}{2}}]^n - [u-(u^2+1)^{\frac{1}{2}}]^n\right]\frac{du}{(u^2+1)^{\frac{1}{2}}}$$

$S_n(a_1,a_2,a_3,a_4;x)$ Generalized hypergeometric function

$$= \sum_{r=1}^{n}\frac{\prod_{j=1}^{n}{}^{*}\Gamma(b_j-b_r)}{\prod_{j=n+1}^{4}\Gamma(1+b_r-b_j)}\,x^{1+2b_r}\,{}_0F_3\left[\begin{matrix} \\ 1+b_r-b_1,\ldots,*,\ldots,1+b_r-b_4\end{matrix};(-1)^n x^2\right]$$

where the asterisks denote that the term containing b_r-b_n is to be omitted.
For n = 1 the product Π in the numerator is to be replaced by 1.
For n = 4 the product Π in the denominator is to be replaced by 1.

$Si(x)$ Sine integral

$$= \int_0^x \frac{\sin u}{u}\,du$$

$si(x)$ Sine integral

$$= -\int_x^\infty \frac{\sin u}{u}\,du$$

$T_n(x)$ Tchebichef polynomial

$$= \cos(n\cos^{-1}x) \qquad n = 0,1,2,\ldots$$

$T^{(n)}_a(x)$ Sonine polynomial

$$= \frac{(-1)^n}{\Gamma(a+n+1)}L^a_n(x) \qquad n = 0,1,2,\ldots$$

$U^{m,n}(x)$

Defined by $\dfrac{e^{-ax}I_0(bx)}{(1-h)(1-k)} = \sum_{m,n=0}^{\infty}h^m k^n U^{m,n}(x)$

where $a+b = \left(\frac{1+h}{1-h}\right)^2$, $a-b = \left(\frac{1+k}{1-k}\right)^2$

$U_n(x)$ Tchebichef polynomial

$$= \frac{\sin[(n+1)\cos^{-1}x]}{\sin(\cos^{-1}x)} \qquad n = 0,1,2,\ldots$$

$U_\nu(x,a)$ Lommel function of two variables

$$= \sum_{n=0}^{\infty}(-1)^n\left(\frac{x}{a}\right)^{\nu+2n}J_{\nu+2n}(a)$$

$V_n(x)$

Defined by $\dfrac{1}{1-u}e^{-\frac{1+u}{1-u}x} = \sum_{n=0}^{\infty}(n+\tfrac{1}{2})V_n(x)P_n(u)$

$V_\nu(x,a)$	Lommel function of two variables	$= \cos\left(\frac{x}{2} + \frac{a^2}{2x} + \frac{\nu\pi}{2}\right) + U_{2-\nu}(x,a)$
$V_\nu^{(b)}$	Kelvin function	$= [\mathrm{ber}'_\nu(x)]^2 + [\mathrm{bei}'_\nu(x)]^2$
$W_{\mu,\nu}(x)$	Whittaker function	$= \frac{\Gamma(-2\nu)M_{\mu,\nu}(x)}{\Gamma(\frac{1}{2}-\nu-\mu)} + \frac{\Gamma(2\nu)M_{\mu,-\nu}(x)}{\Gamma(\frac{1}{2}+\nu-\mu)}$
$W_\nu^{(b)}(x)$	Kelvin function	$= \mathrm{ber}_\nu(x)\mathrm{bei}'_\nu(x) - \mathrm{bei}_\nu(x)\mathrm{ber}'_\nu(x)$
$X_\nu^{(b)}(x)$	Kelvin function	$= \mathrm{ber}^2\nu(x) + \mathrm{bei}^2{}_\nu(x)$
$Y_\nu(x)$	Bessel function	$= \mathrm{cosec}(\nu\pi)[J_\nu(x)\cos(\nu\pi) - J_{-\nu}(x)]$
$Yi_\nu(x)$	Bessel integral function	$= \int_x^\infty Y_\nu(u)\,\frac{du}{u}$
$Z_\nu^{(b)}(x)$	Kelvin function	$= 2\,[\mathrm{ber}_\nu(x)\mathrm{bei}'_\nu(x) + \mathrm{bei}_\nu(x)\mathrm{ber}'_\nu(x)]$
$\Gamma(x)$	Gamma function	$= \int_0^\infty e^{-u}\,u^{x-1}\,du$
$\Gamma(a,x)$	Incomplete gamma function	$= \int_x^\infty e^{-u}\,u^{a-1}\,du$
$\gamma(a,x)$	Incomplete gamma function	$= \int_0^x e^{-u}\,u^{a-1}\,du$
$\delta(x)$	Dirac delta function	

$\zeta(x)$	Zeta function	$= \sum_{n=1}^{\infty} \frac{1}{n^x}$
$\zeta(a,x)$	Zeta function	$= \sum_{n=0}^{\infty} \frac{1}{(n+x)^a}$
$\theta_1(\nu\vert x)$	Theta function	$= \frac{1}{(\pi x)^{\frac{1}{2}}} \sum_{n=-\infty}^{\infty} (-1)^n e^{-\frac{1}{x}(\nu - \frac{1}{2} + n)^2}$
$\theta_2(\nu\vert x)$	Theta function	$= \frac{1}{(\pi x)^{\frac{1}{2}}} \sum_{n=-\infty}^{\infty} (-1)^n e^{-\frac{1}{x}(\nu+n)^2}$
$\theta_3(\nu\vert x)$	Theta function	$= \frac{1}{(\pi x)^{\frac{1}{2}}} \sum_{n=-\infty}^{\infty} e^{-\frac{1}{x}(\nu+n)^2}$
$\theta_4(\nu\vert x)$	Theta function	$= \frac{1}{(\pi x)^{\frac{1}{2}}} \sum_{n=-\infty}^{\infty} e^{-\frac{1}{x}(\nu + \frac{1}{2} + n)^2}$
$\hat{\theta}_1(\nu\vert x)$	Modified theta function	$= \frac{1}{(\pi x)^{\frac{1}{2}}}\left[\sum_{n=0}^{\infty} (-1)^n e^{-\frac{1}{x}(\nu-\frac{1}{2}+n)^2} - \sum_{n=-1}^{-\infty} (-1)^n e^{-\frac{1}{x}(\nu-\frac{1}{2}+n)^2}\right]$
$\hat{\theta}_2(\nu\vert x)$	Modified theta function	$= \frac{1}{(\pi x)^{\frac{1}{2}}}\left[\sum_{n=0}^{\infty} (-1)^n e^{-\frac{1}{x}(\nu+n)^2} - \sum_{n=-1}^{-\infty} (-1)^n e^{-\frac{1}{x}(\nu+n)^2}\right]$
$\hat{\theta}_3(\nu\vert x)$	Modified theta function	$= \frac{1}{(\pi x)^{\frac{1}{2}}}\left[\sum_{n=0}^{\infty} e^{-\frac{1}{x}(\nu+n)^2} - \sum_{n=-1}^{-\infty} e^{-\frac{1}{x}(\nu+n)^2}\right]$
$\hat{\theta}_4(\nu\vert x)$	Modified theta function	$= \frac{1}{(\pi x)^{\frac{1}{2}}}\left[\sum_{n=0}^{\infty} e^{-\frac{1}{x}(\nu+\frac{1}{2}+n)^2} - \sum_{n=-1}^{-\infty} e^{-\frac{1}{x}(\nu+\frac{1}{2}+n)^2}\right]$

$\mu(x,a)$ $$= \int_0^\infty \frac{x^u u^a}{\Gamma(u+1)}\,du$$

$\nu(x)$ $$= \int_0^\infty \frac{x^u}{\Gamma(u+1)}\,du$$

$\nu(x,a)$ $$= \int_0^\infty \frac{x^{u+a}}{\Gamma(u+a+1)}\,du$$

$\Phi_1(a,b,c;x,z)$ Hypergeometric function of two variables $$= \sum_{m,n=0}^{\infty} \frac{(a)_{m+n}(b)_m}{(c)_{m+n}m!n!} x^m z^n$$

$\Phi_2(a,b,c;x,z)$ Hypergeometric function of two varaables $$= \sum_{m,n=0}^{\infty} \frac{(a)_m(b)_n}{(c)_{m+n}m!n!} x^m z^n$$

$\Phi_2(b_1,\ldots,b_n;c;x_1,\ldots,x_n)$ Generalized hypergeometric function $$= \sum \frac{(b_1)_{m_1}\cdots(b_n)_{m_n}}{(c)_{m_1+\cdots+m_n} m_1!\cdots m_n!} x_1^{m_1}\cdots x_n^{m_n}$$

where Σ represents an n-fold summation in $m_1,\ldots,m_n$, each running from 0 to ∞.

$\Phi_3(b,c;x,z)$ Hypergeometric function of two variables $$= \sum_{m,n=0}^{\infty} \frac{(b)_m}{(c)_{m+n}m!n!} x^m z^n$$

$\psi(x)$ Logarithmic derivative of the gamma function $$= \frac{\Gamma'(x)}{\Gamma(x)}$$

$\Psi_1(a,b,c,d;x,z)$ Confluent hypergeometric function of two variables $$= \sum_{m,n=0}^{\infty} \frac{(a)_{m+n}(b)_m}{(c)_m(d)_n m!n!} x^m z^n$$

$\Psi_2(a,c,d;x,z)$ Confluent hypergeometric function of two variables $$= \sum_{m,n=0}^{\infty} \frac{(a)_{m+n}}{(c)_m(d)_n m!n!} x^m z^n$$

$\Psi_2(a;b_1,\ldots,b_n;x_1,\ldots,x_n)$ Confluent hypergeometric function of n variables $$= \sum \frac{(a)_{m_1+\cdots+m_n}}{(b_1)_{m_1}\cdots(b_n)_{m_n} m_1!\cdots m_n!} x_1^{m_1}\cdots x_n^{m_n}$$

where Σ represents an n-fold summation in $m_1,\ldots,m_n$, each running from 0 to ∞.

$\Xi_1(a,b,c,d;x,z)$ Confluent hypergeometric function of two variables $$= \sum_{m,n=0}^{\infty} \frac{(a)_m(b)_n(c)_m}{(d)_{m+n} m!n!} x^m z^n$$

$\Xi_2(a,b,c;x,z)$ Confluent hypergeometric function of two variables $$= \sum_{m,n=0}^{\infty} \frac{(a)_m(b)_m}{(c)_{m+n} m!n!} x^m z^n$$

MISCELLANEOUS NOTATIONS

$a, b, c, d, x, y, \theta, \mu, \nu$	Arbitrary constants; an exception is the use of x and y in the Function Index
$f^{(n)}$	n^{th} derivative
Im	Imaginary part of
log	Logarithm to base e
Re	Real part of
Δ_a^n	Difference operator $\Delta_a g(s) = g(s+a) - g(s)$ $\Delta_a^2 g(s) = g(s+2a) - 2g(s+a) + g(s)$, etc.
$(a)_n$	$a(a+1)(a+2)\ldots(a+n-1) \quad n = 1, 2, 3, \ldots \quad (a)_0 = 1$
$\binom{x}{a}$	Binomial coefficient $\dfrac{\Gamma(x)}{\Gamma(a)\Gamma(x-a)}$
$[n]$	The largest integer $\leq n$
γ	Euler constant $= e^C$ where $C = \lim\limits_{n \to \infty} \left(\sum\limits_{m=1}^{n} \frac{1}{m} - \log n \right) = .57722\ldots$
$*$	Convolution, defined by $f_1(t) * f_2(t) = \int_0^t f_1(u) f_2(t-u)\,du$
$\rfloor$	Jump function designation (See Function Definitions)

Note: In certain entries with piecewise defined functions the symbol $n = 0, 1, 2, \ldots$ (or $n = 1, 2, 3, \ldots$), which really forms part of the definition of $f(t)$, has for convenience been placed in the last column. In these cases the symbol is underlined, $\underline{n = 0, 1, 2, \ldots}$ (or $\underline{n = 1, 2, 3, \ldots}$), to avoid confusion with the use of the same symbol as a parameter in the functional definitions.

Part I

DIRECT TRANSFORMS

Section 1 • Operations

	$f(t)$	$g(s)$	
Linearity, Scale Change & Translation			
1.	$a\,f(t)$	$a\,g(s)$	
2.	$f_1(t) \pm f_2(t)$	$g_1(s) \pm g_2(s)$	
3.	$f(at)$	$\frac{1}{a} g(\frac{s}{a})$	$a > o$
4.	$f(t+a)$	$e^{as}[g(s) - \int_o^a e^{-su} f(u)\,du]$	$a \geq o$
5.	$o \quad o < t < \frac{b}{a}$ $f(at-b) \quad t > \frac{b}{a}$	$\frac{1}{a} e^{-\frac{bs}{a}} g(\frac{s}{a})$	$a, b > o$

Multiplication by a Function

	$f(t)$	$g(s)$	
6.	$\frac{1}{t}f(t)$	$\int_s^\infty g(u)\,du$	
7.	$\frac{1}{t^n}f(t)$	$\int_s^\infty \cdots \int_s^\infty g(u)(du)^n$	$n=1,2,3,\ldots$
8.	$t^n f(t)$	$(-1)^n \frac{d^n g(s)}{ds^n}$	$n=0,1,2,3,\ldots$
9.	$e^{\frac{b}{a}t} f(\frac{t}{a})$	$a\,g(as-b)$	$a>0$
10.	$(e^{-at}-1)f(t)$	$g(s+a)-g(s)$	
11.	$(e^{-at}-1)^n f(t)$	$\Delta_a^n\, g(s)$	$n=1,2,3,\ldots$
12.	$f(t)\sin at$	$\frac{1}{2i}[g(s-ia)-g(s+ia)]$	
13.	$f(t)\cos at$	$\frac{1}{2}[g(s-ia)+g(s+ia)]$	
14.	$f(t)\sinh at$	$\frac{1}{2}[g(s-a)-g(s+a)]$	
15.	$f(t)\cosh at$	$\frac{1}{2}[g(s-a)+g(s+a)]$	
16.	$f_1(t)f_2(t)$	$\frac{1}{2\pi i}\int_{c-i\infty}^{c+i\infty} g_1(u)g_2(s-u)\,du$ where c is a line parallel to the imaginary axis and to the right of all the singularities of the integrand	

Composite Functions

	$f(t)$	$g(s)$	
17.	$f(\frac{1}{t})$	$\frac{1}{s^{\frac{1}{2}}}\int_0^\infty u^{\frac{1}{2}}J_1(2s^{\frac{1}{2}}u^{\frac{1}{2}})g(u)\,du$	
18.	$\frac{1}{t}f(\frac{1}{t})$	$\int_0^\infty J_0(2s^{\frac{1}{2}}u^{\frac{1}{2}})g(u)\,du$	
19.	$t^{\nu-1}f(\frac{1}{t})$	$s^{-\frac{\nu}{2}}\int_0^\infty u^{\frac{\nu}{2}}J_\nu(2u^{\frac{1}{2}}s^{\frac{1}{2}})g(u)\,du$	$\operatorname{Re}\nu>-1$
20.	$f(t^2)$	$\frac{1}{\pi^{\frac{1}{2}}}\int_0^\infty e^{-\frac{s^2}{4u^2}}g(u^2)\,du$ $=\frac{1}{2\pi^{\frac{1}{2}}}\int_0^\infty u^{-\frac{1}{2}}e^{-\frac{s^2}{4u}}g(u)\,du$	
21.	$t\,f(t^2)$	$\frac{s}{4\pi^{\frac{1}{2}}}\int_0^\infty u^{-\frac{3}{2}}e^{-\frac{s^2}{4u}}g(u)\,du$	
22.	$t^n f(t^2)$	$\frac{1}{2^{\frac{n}{2}}\pi^{\frac{1}{2}}}\int_0^\infty u^{n-2}e^{-\frac{s^2u^2}{4}}He_n(2^{-\frac{1}{2}}su)g(u^{-2})\,du$	$n=0,1,2,\ldots$
23.	$t^\nu f(t^2)$	$\frac{1}{(2\pi)^{\frac{1}{2}}}\int_0^\infty u^{\nu-1}e^{-\frac{s^2u^2}{4}}D_\nu(su)g(\frac{1}{2u^2})\,du$	
24.	$f(ae^t-a)$	$\frac{1}{a\Gamma(s+1)}\int_0^\infty e^{-u}u^s g(\frac{u}{a})\,du$	$a>0$
25.	$f(a\sinh t)$	$\int_0^\infty J_s(au)g(u)\,du$	$a>0$
26.	$f[w(t)]$	$\int_{w(0)}^{w(\infty)} r(s,u)g(u)\,du$ where $r(s,t)$ is the inverse transform of $h'(s)e^{-sh(s)}$ and $h(s)$ is the reciprocal function of $w(s)$	

	$f(t)$	$g(s)$	
Differentiation			
27.	$\frac{df(t)}{dt}$	$s\,g(s)-f(0)$	
28.	$\frac{d^2f(t)}{dt^2}$	$s^2g(s)-s\,f(0)-f'(0)$	
29.	$f^{(n)}(t)$	$s^n g(s)-s^{n-1}f(0)-s^{n-2}f'(0)-\dots-f^{(n-1)}(0)$	$n=1,2,\dots$
30.	$\left(t\frac{d}{dt}\right)^n f(t)$	$\left(-\frac{d}{ds}s\right)^n g(s)$	$n=0,1,2,\dots$
31.	$\left(\frac{d}{dt}t\right)^n f(t)$	$\left(-s\frac{d}{ds}\right)^n g(s)$	$n=0,1,2,\dots$
32.	$\left(\frac{1}{t}\frac{d}{dt}\right)^n f(t)$ if $\left(\frac{1}{t}\frac{d}{dt}\right)^k f(t)=0$ for $t=0$ $k=0,1,\dots,n-1$	$\int_s^\infty u\int_s^\infty \dots u\int_s^\infty u\,g(u)(du)^n$	
33.	$t^m f^{(n)}(t)$	$\left(-\frac{d}{ds}\right)^m[s^n g(s)]$	$m \geq n$ $m,n=0,1,2,\dots$
34.	$t^m f^{(n)}(t)$	$\left(-\frac{d}{ds}\right)^m[s^n g(s)]+(-1)^{m-1}\left[\frac{(n-1)!}{(n-m-1)!}s^{n-m-1}f(0)\right.$ $\left.+\frac{(n-2)!}{(n-m-2)!}s^{n-m-2}f'(0)+\dots+m!\,f^{(n-m-1)}(0)\right]$	$m<n$ $m,n=0,1,2,\dots$
35.	$\frac{d^n}{dt^n}[t^m f(t)]$	$(-1)^m s^n g^{(m)}(s)$	$m \geq n$ $m,n=0,1,2,\dots$
36.	$\frac{d^n}{dt^n}[t^m f(t)]$	$(-1)^m s^n g^{(m)}(s)-m!\,s^{n-m-1}f(0)-\frac{(m+1)!}{1!}s^{n-m-2}f'(0)-\dots$ $-\frac{(n-1)!}{(n-m-1)!}f^{(n-m-1)}(0)$	$m<n$ $m,n=0,1,2,\dots$

	$f(t)$	$g(s)$	
37.	$\left(e^t\frac{d}{dt}\right)^n f(t)$ if $f^{(k)}(0)=0$ for $k=0,1,\dots,n-1$	$(s-1)\dots(s-n)g(s-n)$	$n=1,2,3,\dots$
38.	$\frac{\partial}{\partial a}f(t,a)$	$\frac{\partial}{\partial a}g(s,a)$	
Integration			
39.	$\int_{a_0}^{a} f(t,u)\,du$	$\int_{a_0}^{a} g(s,v)\,dv$	
40.	$\int_0^t f_1(u)f_2(t-u)\,du$ $=f_1(t)*f_2(t)$	$g_1(s)g_2(s)$	
41.	$\int_0^t\dots\int_0^t f(u)(du)^n$	$s^{-n}g(s)$	$n=1,2,3,\dots$
42.	$\int_a^t f(u)\,du$	$s^{-1}g(s)+s^{-1}\int_a^0 f(u)\,du$	
43.	$\int_t^\infty u^{-1}f(u)\,du$	$s^{-1}\int_0^s g(v)\,dv$	
44.	$\int_0^t u^{-1}f(u)\,du$	$s^{-1}\int_s^\infty g(v)\,dv$	
45.	$\int_0^\infty \frac{t^{au-1}}{\Gamma(au)}f(u)\,du$	$g(\log s^a)$	
46.	$\int_0^\infty \frac{t^u}{\Gamma(u+1)}f(u)\,du$	$s^{-1}g(\log s)$	
47.	$t^{-\frac{1}{2}}\int_0^\infty e^{-\frac{u^2}{4t}}f(u)\,du$	$\left(\frac{\pi}{s}\right)^{\frac{1}{2}}g(s^{\frac{1}{2}})$	
48.	$t^{-\frac{3}{2}}\int_0^\infty u\,e^{-\frac{u^2}{4t}}f(u)\,du$	$2\pi^{\frac{1}{2}}g(s^{\frac{1}{2}})$	

	f(t)	g(s)	
49.	$\int_0^t u(t-u)^{-\frac{3}{2}} e^{-\frac{u^2}{4(t-u)}} f(u)\,du$	$2\pi^{\frac{1}{2}} g(s+s^{\frac{1}{2}})$	
50.	$\int_0^t (t-u)^{-\frac{1}{2}} e^{-\frac{u^2}{4(t-u)}} f(u)\,du$	$(\frac{\pi}{s})^{\frac{1}{2}} g(s+s^{\frac{1}{2}})$	
51.	$\int_0^\infty u^{-\frac{1}{2}} \sin(2t^{\frac{1}{2}}u^{\frac{1}{2}}) f(u)\,du$	$\frac{\pi^{\frac{1}{2}}}{s^{\frac{3}{2}}} g(\frac{1}{s})$	
52.	$t^{-\frac{1}{2}} \int_0^\infty \cos(2t^{\frac{1}{2}}u^{\frac{1}{2}}) f(u)\,du$	$(\frac{\pi}{s})^{\frac{1}{2}} g(\frac{1}{s})$	
53.	$\int_0^\infty u^{-\frac{1}{2}} \sinh(2t^{\frac{1}{2}}u^{\frac{1}{2}}) f(u)\,du$	$\frac{\pi^{\frac{1}{2}}}{s^{\frac{3}{2}}} g(-\frac{1}{s})$	
54.	$t^{-\frac{1}{2}} \int_0^\infty \cosh(2t^{\frac{1}{2}}u^{\frac{1}{2}}) f(u)\,du$	$(\frac{\pi}{s})^{\frac{1}{2}} g(-\frac{1}{s})$	
55.	$\int_0^t J_0[a(t^2-u^2)^{\frac{1}{2}}] f(u)\,du$	$\frac{g[(s^2+a^2)^{\frac{1}{2}}]}{(s^2+a^2)^{\frac{1}{2}}}$	
56.	$\int_0^t J_0[2(t-u)^{\frac{1}{2}}u^{\frac{1}{2}}] f(u)\,du$	$\frac{1}{s} g(s+\frac{1}{s})$	
57.	$\int_0^\infty J_0(2t^{\frac{1}{2}}u^{\frac{1}{2}}) f(u)\,du$	$\frac{1}{s} g(\frac{1}{s})$	
58.	$f(t) - a\int_0^t f[(t^2-u^2)^{\frac{1}{2}}] J_1(au)\,du$	$g[(s^2+a^2)^{\frac{1}{2}}]$	
59.	$f(t) - at\int_0^t (t^2-u^2)^{-\frac{1}{2}} J_1[a(t^2-u^2)^{\frac{1}{2}}] f(u)\,du$	$\frac{s}{(s^2+a^2)^{\frac{1}{2}}} g[(s^2+a^2)^{\frac{1}{2}}]$	
60.	$t^{-\frac{1}{2}} \int_0^\infty e^{-bu}(t+2u)^{-\frac{1}{2}} J_1[a(t^2+2tu)^{\frac{1}{2}}]\, u f(u)\,du$	$\frac{1}{a} g(b) - \frac{1}{a} g[b+(s^2+a^2)^{\frac{1}{2}} - s]$	
61.	$t^\nu \int_0^\infty J_{2\nu}(2t^{\frac{1}{2}}u^{\frac{1}{2}}) u^{-\nu} f(u)\,du$	$s^{-2\nu-1} g(\frac{1}{s})$	$\mathrm{Re}\,\nu > -\frac{1}{2}$
62.	$\int_0^t \left(\frac{t-u}{au}\right)^\nu J_{2\nu}[2(atu-au^2)^{\frac{1}{2}}] f(u)\,du$	$s^{-2\nu-1} g(s+\frac{a}{s})$	

	f(t)	g(s)	
63.	$\int_0^t \left(\frac{t-u}{t+u}\right)^\nu J_{2\nu}[a(t^2-u^2)^{\frac{1}{2}}] f(u)\,du$	$\frac{a^{2\nu} g[(s^2+a^2)^{\frac{1}{2}}]}{(s^2+a^2)^{\frac{1}{2}}[(s^2+a^2)^{\frac{1}{2}}+s]^{2\nu}}$	$\mathrm{Re}\,\nu > -\frac{1}{2}$
64.	$t^\nu \int_0^\infty (t+2u)^{-\nu} J_{2\nu}[a(t^2+2tu)^{\frac{1}{2}}] f(u)\,du$	$\frac{[(s^2+a^2)^{\frac{1}{2}}-s]^{2\nu} g[(s^2+a^2)^{\frac{1}{2}}-s]}{a^{2\nu}(s^2+a^2)^{\frac{1}{2}}}$	$\mathrm{Re}\,\nu > -\frac{1}{2}$
65.	$t^\nu \int_0^\infty (1-2u)^{-\nu} J_{2\nu}[a(t^2-2tu)^{\frac{1}{2}}] f(u)\,du$	$\frac{[(s^2+a^2)^{\frac{1}{2}}-s]^{2\nu} g[s-(s^2+a^2)^{\frac{1}{2}}]}{a^{2\nu}(s^2+a^2)^{\frac{1}{2}}}$	$\mathrm{Re}\,\nu > -\frac{1}{2}$
66.	$\int_0^t \left(\frac{t-u}{t+u}\right)^\nu I_{2\nu}[a(t^2-u^2)^{\frac{1}{2}}] f(u)\,du$	$\frac{a^{2\nu} g[(s^2-a^2)^{\frac{1}{2}}]}{(s^2-a^2)^{\frac{1}{2}}[s+(s^2-a^2)^{\frac{1}{2}}]^{2\nu}}$	$\mathrm{Re}\,\nu > -\frac{1}{2}$
67.	$\int_0^t I_0[a(t^2-u^2)^{\frac{1}{2}}] f(u)\,du$	$\frac{g[(s^2-a^2)^{\frac{1}{2}}]}{(s^2-a^2)^{\frac{1}{2}}}$	
68.	$f(t) + a\int_0^t f[(t^2-u^2)^{\frac{1}{2}}] I_1(u)\,du$	$g[(s^2-a^2)^{\frac{1}{2}}]$	
69.	$f(t) + at\int_0^t (t^2-u^2)^{-\frac{1}{2}} I_1[a(t^2-u^2)^{\frac{1}{2}}] f(u)\,du$	$\frac{s\, g[(s^2-a^2)^{\frac{1}{2}}]}{(s^2-a^2)^{\frac{1}{2}}}$	
70.	$t^{-\frac{1}{2}} \int_0^\infty e^{-bu}(t+2u)^{-\frac{1}{2}} I_1[at^{\frac{1}{2}}(t+2u)^{\frac{1}{2}}]\, u f(u)\,du$	$\frac{1}{a} g[b+(s^2-a^2)^{\frac{1}{2}}-s] - \frac{1}{a} g(b)$	
71.	$t^\nu \int_0^\infty (t+2u)^{-\nu} I_{2\nu}[a(t^2+2tu)^{\frac{1}{2}}] f(u)\,du$	$\frac{[s-(s^2-a^2)^{\frac{1}{2}}]^{2\nu} g[(s^2-a^2)^{\frac{1}{2}}-s]}{a^{2\nu}(s^2-a^2)^{\frac{1}{2}}}$	$\mathrm{Re}\,\nu > -\frac{1}{2}$
72.	$t^\nu \int_0^\infty (t-2u)^{-\nu} I_{2\nu}[a(t^2-2tu)^{\frac{1}{2}}] f(u)\,du$	$\frac{[s-(s^2-a^2)^{\frac{1}{2}}]^{2\nu} g[s-(s^2-a^2)^{\frac{1}{2}}]}{a^{2\nu}(s^2-a^2)^{\frac{1}{2}}}$	$\mathrm{Re}\,\nu > -\frac{1}{2}$
73.	$t^{-\frac{n+1}{2}} \int_0^\infty e^{-\frac{u^2}{4t}} He_n\left[\frac{u}{(2t)^{\frac{1}{2}}}\right] f(u)\,du$	$2^{\frac{n}{2}}\pi^{\frac{1}{2}} s^{\frac{n-1}{2}} g(s^{\frac{1}{2}})$	$n = 0,1,2,\ldots$
74.	$t^{-\nu-1} \int_0^\infty e^{-\frac{u^2}{8t}} D_{2\nu+1}\left(\frac{u}{2^{\frac{1}{2}}t^{\frac{1}{2}}}\right) f(u)\,du$	$2^{\nu+\frac{1}{2}}\pi^{\frac{1}{2}} s^\nu g(s^{\frac{1}{2}})$	

	$f(t)$	$g(s)$	
75.	$\int_0^\infty {}_oF_n\left[\frac{1}{n},\frac{2}{n},\ldots,\frac{n-1}{n},1;\ \frac{-ut^n}{n^n}\right] f(u)\,du$	$\frac{1}{s}\, g\left(\frac{1}{s^n}\right)$	$n=1,2,3,\ldots$
76.	$\int_0^\infty r(u,t) f(u)\,du$ where the direct transform of $r(u,t)$ is $e^{-uw(s)}$	$g[w(s)]$	

Miscellaneous

77.	$f(t+a) = f(t)$	$(1-e^{-as})^{-1}\int_0^a e^{-su} f(u)\,du$	$a>0$
78.	$f(t+a) = -f(t)$	$(1+e^{-as})^{-1}\int_0^a e^{-su} f(u)\,du$	$a>0$
79.	$\int f(t+1)$	$e^s\left[g(s) - f(0)\,\frac{1-e^{-s}}{s}\right]$	
80.	$\lim\limits_{a\to a_0} f(t,a)$	$\lim\limits_{a\to a_0} g(s,a)$	
81.	$\lim\limits_{t\to 0} f(t)$	$\lim\limits_{s\to\infty} s\,g(s)$	
82.	$\lim\limits_{t\to\infty} f(t)$	$\lim\limits_{s\to 0} s\,g(s)$ if $s\,g(s)$ is analytic on the imaginary axis and in the right half-plane	
83.	$\sum_{n=1}^{\infty}\frac{1}{n} f\left(\frac{t}{n}\right)$	$\int_0^\infty (e^{su}-1)^{-1} f(u)\,du$	

Section 2 · Direct Transform Pairs

	$f(t)$	$g(s)$	
1	$\delta(t-a)$	e^{-as}	$a\geq 0$ $\mathrm{Re}\, s > -\infty$
2	1	$\frac{1}{s}$	$\mathrm{Re}\, s > 0$
3	t^n	$n!\, s^{-n-1}$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s > 0$
4	$\frac{1}{t+a}$	$-e^{as}\,\mathrm{Ei}(-as)$	$\lvert\arg a\rvert < \pi$ $\mathrm{Re}\, s > 0$
5	$\frac{1}{t-a}$	$-e^{-as}\,\overline{\mathrm{Ei}}(as)$ Cauchy Principal Value of integral	$a>0$ $\mathrm{Re}\, s > 0$
6	$\frac{1}{(t+a)^2}$	$se^{as}\,\mathrm{Ei}(-as) + \frac{1}{a}$	$a\neq 0$ $\lvert\arg a\rvert < \pi$ $\mathrm{Re}\, s > 0$

		$f(t)$	$g(s)$	
1 (Contd.)	7	$\frac{1}{(t+a)^n}$	$\sum_{m=1}^{n-1}\frac{(m-1)!\,(-s)^{n-m-1}}{(n-1)!\quad a^m}-\frac{(-s)^{n-1}}{(n-1)!}e^{as}\mathrm{Ei}(-as)$	$\|\arg a\|<\pi$ $n=2,3,4,\ldots$ $\mathrm{Re}\,s>0$
	8	$\frac{t^n}{t+a}$	$(-1)^{n-1}a^n e^{as}\mathrm{Ei}(-as)+\sum_{m=1}^{n}(m-1)!(-a)^{n-m}s^{-m}$	$\|\arg a\|<\pi$ $n=1,2,3,\ldots$ $\mathrm{Re}\,s>0$
	9	$\frac{1}{t^2+a^2}$	$-a^{-1}[\mathrm{ci}(as)\sin(as)+\mathrm{si}(as)\cos(as)]$	$\mathrm{Re}\,a>0$ $\mathrm{Re}\,s>0$
	10	$\frac{t}{t^2+a^2}$	$\mathrm{ci}(as)\cos(as)-\mathrm{si}(as)\sin(as)$	$\mathrm{Re}\,a>0$ $\mathrm{Re}\,s>0$
	11	$\frac{bt+c}{t^2+a^2}$	$[b\cos(as)-\frac{c}{a}\sin(as)]\mathrm{ci}(as)-[b\sin(as)+\frac{c}{a}\cos(as)]\mathrm{si}(as)$	$\|\arg(\pm ia)\|<\pi$ $\mathrm{Re}\,s>0$
	12	$\frac{bt+c}{t^2-a^2}$	$-\frac{1}{2}(b-\frac{c}{a})e^{-as}\mathrm{Ei}(-as)-\frac{1}{2}(b+\frac{c}{a})e^{-as}\overline{\mathrm{Ei}}(as)$ Cauchy Principal Value of integral	$a>0$ $\mathrm{Re}\,s>0$
	13	$\frac{bt+c}{t^2-a^2}$	$-\frac{1}{2}(b-\frac{c}{a})e^{as}\mathrm{Ei}(-as)-\frac{1}{2}(b+\frac{c}{a})e^{-as}\mathrm{Ei}(as)$	$\|\arg(\pm a)\|<\pi$ $\mathrm{Re}\,s>0$
Functions of t only				
2	1	$t^{\frac{1}{2}}$	$\frac{\pi^{\frac{1}{2}}}{2s^{\frac{3}{2}}}$	$\mathrm{Re}\,s>0$
	2	$\frac{1}{t^{\frac{1}{2}}}$	$(\frac{\pi}{s})^{\frac{1}{2}}$	$\mathrm{Re}\,s>0$
	3	$t^{n-\frac{1}{2}}$	$\pi^{\frac{1}{2}}(\frac{1}{2})(\frac{3}{2})\cdots(\frac{2n-1}{2})s^{-\frac{2n+1}{2}}$	$n=1,2,3,\ldots$ $\mathrm{Re}\,s>0$
	4	t^{ν}	$\frac{\Gamma(\nu+1)}{s^{\nu+1}}$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\,s>0$

		$f(t)$	$g(s)$	
2 (Contd.)				
Functions of t, $(t\pm a)$				
	5	$\frac{1}{(t+a)^{\frac{1}{2}}}$	$(\frac{\pi}{s})^{\frac{1}{2}}e^{as}\mathrm{Erfc}\,(a^{\frac{1}{2}}s^{\frac{1}{2}})$	$\|\arg a\|<\pi$ $\mathrm{Re}\,s>0$
	6	$\frac{1}{(t+a)^{\frac{3}{2}}}$	$2a^{-\frac{1}{2}}-2\pi^{\frac{1}{2}}s^{\frac{1}{2}}e^{as}\mathrm{Erfc}(a^{\frac{1}{2}}s^{\frac{1}{2}})$	$\|\arg a\|<\pi$ $\mathrm{Re}\,s>0$
	7	$(t+a)^{\nu}$	$\frac{e^{as}\Gamma(\nu+1,as)}{s^{\nu+1}}$ $=a^{\nu+1}S(-\nu,as)$	$\|\arg a\|<\pi$ $\mathrm{Re}\,s>0$
	8	$\frac{t^{\nu-1}}{(t+a)^{\nu+\frac{1}{2}}}$	$2^{\nu}\,\Gamma(\nu)a^{-\frac{1}{2}}e^{\frac{as}{2}}D_{-2\nu}(2^{\frac{1}{2}}a^{\frac{1}{2}}s^{\frac{1}{2}})$	$\mathrm{Re}\,\nu>0$ $\|\arg a\|<\pi$ $\mathrm{Re}\,s>0$
	9	$\frac{t^{\nu-1}}{(t+a)^{\nu-\frac{1}{2}}}$	$2^{\nu-\frac{1}{2}}\Gamma(\nu)s^{-\frac{1}{2}}e^{\frac{as}{2}}D_{1-2\nu}(2^{\frac{1}{2}}a^{\frac{1}{2}}s^{\frac{1}{2}})$	$\mathrm{Re}\,\nu>0$ $\|\arg a\|<\pi$ $\mathrm{Re}\,s>0$
	10	$t^{\mu}(a+t)^{\nu}$	$\Gamma(\mu+1)a^{\frac{\mu+\nu}{2}}s^{-\frac{\mu+\nu+2}{2}}e^{\frac{as}{2}}W_{\frac{\nu-\mu}{2},\,\frac{\mu+\nu+1}{2}}(as)$	$\|\arg a\|<\pi$ $\mathrm{Re}\;\mu>-1$ $\mathrm{Re}\,s>0$
Functions of (t^2+a^2)				
	11	$(t^2+a^2)^{\frac{1}{2}}-a$	$\frac{\pi^{\frac{1}{2}}e^{a^2s}}{2s^{\frac{3}{2}}}\mathrm{erfc}(as^{\frac{1}{2}})$	$\mathrm{Re}\,s>0$
	12	$\frac{1}{(1+t^2)^{\frac{1}{2}}}$	$S_{0,0}(s)$ $=-\frac{\pi}{2}[E_0(s)+Y_0(s)]$ $=\frac{\pi}{2}[H_0(s)-Y_0(s)]$	$\mathrm{Re}\,s>0$
	13	$(t^2+a^2)^{\nu}$	$2^{\nu-\frac{1}{2}}\pi^{\frac{1}{2}}a^{\nu+\frac{1}{2}}\Gamma(\nu+1)s^{-\nu-\frac{1}{2}}[H_{\nu+\frac{1}{2}}(as)-Y_{\nu+\frac{1}{2}}(as)]$	$\mathrm{Re}\,a>0$ $-2<\mathrm{Re}\,\nu<0$ $\mathrm{Re}\,s>0$

2 (Contd.)

Functions of $(t^2 \pm at)$ only

	$f(t)$	$g(s)$	
14	$(t^2+at)^{\frac{1}{2}}$	$\frac{a}{2s} e^{\frac{as}{2}} K_1(\frac{as}{2})$	$\lvert \arg a \rvert < \pi$ $Re\, s > 0$
15	$\frac{1}{(t^2+at)^{\frac{1}{2}}}$	$e^{\frac{as}{2}} K_0(\frac{as}{2})$	$\lvert \arg a \rvert < \pi$ $Re\, s > 0$
16	$(t^2+at)^{\nu}$	$\pi^{-\frac{1}{2}}\Gamma(\nu+1)(\frac{a}{s})^{\nu+\frac{1}{2}} e^{\frac{as}{2}} K_{\nu+\frac{1}{2}}(\frac{as}{2})$	$\lvert \arg a \rvert < \pi$ $Re\, \nu > -1$ $Re\, s > 0$
17	$(t^2+it)^{\nu}$	$-\frac{i\pi^{\frac{1}{2}}}{2}\Gamma(\nu+1)s^{-\nu-\frac{1}{2}} e^{\frac{is}{2}} H^{(2)}_{\nu+\frac{1}{2}}(\frac{s}{2})$	$Re\, \nu > -1$ $Re\, s > 0$
18	$(t^2+ait)^{\nu}$	$-\frac{1}{2}\pi^{\frac{1}{2}} a^{\nu+\frac{1}{2}}\Gamma(\nu+1)s^{-\nu-\frac{1}{2}} e^{\frac{ias}{2}} H^{(2)}_{\nu+\frac{1}{2}}(\frac{as}{2})$	$Re\, \nu > -1$ $-\frac{3\pi}{2} < \arg a < \frac{\pi}{2}$ $Re\, s > 0$
19	$(t^2-it)^{\nu}$	$\frac{i\pi^{\frac{1}{2}}}{2}\Gamma(\nu+1)s^{-\nu-\frac{1}{2}} e^{-\frac{is}{2}} H^{(1)}_{\nu+\frac{1}{2}}(\frac{s}{2})$	$Re\, \nu > -1$ $Re\, s > 0$
20	$(t^2-ait)^{\nu}$	$\frac{1}{2}\pi^{\frac{1}{2}} a^{\nu+\frac{1}{2}}\Gamma(\nu+1)s^{-\nu-\frac{1}{2}} e^{-\frac{ias}{2}} H^{(1)}_{\nu+\frac{1}{2}}(\frac{as}{2})$	$Re\, \nu > -1$ $-\frac{\pi}{2} < \arg a < \frac{3\pi}{2}$ $Re\, s > 0$

Functions of $[(t^2+a^2)^{\frac{1}{2}} \pm t]$

21	$[(t^2+1)^{\frac{1}{2}}+t]^{\nu}$	$s^{-1}S_{1,\nu}(s)+\nu s^{-1}S_{0,\nu}(s)$	$Re\, s > 0$
22	$[(t^2+1)^{\frac{1}{2}}-t]^{\nu}$	$s^{-1}S_{1,\nu}(s)-\nu s^{-1}S_{0,\nu}(s)$	$Re\, s > 0$
23	$[(t^2+1)^{\frac{1}{2}}+t]^{\nu}+[(t^2+1)^{\frac{1}{2}}-t]^{\nu}$	$\frac{2}{s}S_{1,\nu}(s)$	$Re\, s > 0$

2 (Contd.)

	$f(t)$	$g(s)$	
24	$[(t^2+1)^{\frac{1}{2}}+t]^{\nu}-[(t^2+1)^{\frac{1}{2}}-t]^{\nu}$	$\frac{2\nu}{\nu^2-1}\left[\frac{1}{s}S_{2,\nu}(s)-1\right]$	$Re\, s > 0$
25	$\frac{[(t^2+1)^{\frac{1}{2}}-t]^{\nu}}{(t^2+1)^{\frac{1}{2}}}$	$S_{0,\nu}(s)-\nu S_{-1,\nu}(s)$ $=[J_{\nu}(s)-J_{\nu}(s)]\pi\operatorname{cosec}(\nu\pi)$	$Re\, s > 0$
26	$\frac{[(t^2+1)^{\frac{1}{2}}+t]^{\nu}+[(t^2+1)^{\frac{1}{2}}-t]^{\nu}}{(t^2+1)^{\frac{1}{2}}}$	$2S_{0,\nu}(s)$	$Re\, s > 0$
27	$\frac{[(t^2+1)^{\frac{1}{2}}+t]^{\nu}-[(t^2+1)^{\frac{1}{2}}-t]^{\nu}}{(t^2+1)^{\frac{1}{2}}}$	$2\nu S_{-1,\nu}(s)$	$Re\, s > 0$
28	$\frac{[(a^2t^2+1)^{\frac{1}{2}}+at]^{\nu}+\cos(\nu\pi)[(a^2t^2+1)^{\frac{1}{2}}-at]^{\nu}}{(a^2t^2+1)^{\frac{1}{2}}}$	$-a^{-1}[E_{\nu}(\frac{s}{a})+Y_{\nu}(\frac{s}{a})]$	$Re\, s > 0$
29	$\left[\frac{t+(t^2+a^2)^{\frac{1}{2}}}{t(t^2+a^2)}\right]^{\frac{1}{2}}$	$\frac{\pi}{2^{\frac{1}{2}}}[\sin(\frac{as}{2})J_0(\frac{as}{2})-\cos(\frac{as}{2})Y_0(\frac{as}{2})]$	$Re\, a > 0$ $Re\, s > 0$
30	$\left[\frac{(t^2+a^2)^{\frac{1}{2}}-t}{t(t^2+a^2)}\right]^{\frac{1}{2}}$	$\frac{\pi}{2^{\frac{1}{2}}}[\cos(\frac{as}{2})J_0(\frac{as}{2})+\sin(\frac{as}{2})Y_0(\frac{as}{2})]$	$Re\, a > 0$ $Re\, s > 0$
31	$\frac{[t+(t^2+a^2)^{\frac{1}{2}}]^{\frac{3}{2}}}{t^{\frac{1}{2}}(t^2+a^2)^{\frac{1}{2}}}$	$\frac{\pi a}{2^{\frac{1}{2}}}[\sin(\frac{as}{2})J_1(\frac{as}{2})-\cos(\frac{as}{2})Y_1(\frac{as}{2})]$	$Re\, a > 0$ $Re\, s > 0$
32	$\frac{[(t^2+a^2)^{\frac{1}{2}}-t]^{\frac{3}{2}}}{t^{\frac{1}{2}}(t^2+a^2)^{\frac{1}{2}}}$	$-\frac{\pi a}{2^{\frac{1}{2}}}[\cos(\frac{as}{2})J_1(\frac{as}{2})+\sin(\frac{as}{2})Y_1(\frac{as}{2})]$	$Re\, a > 0$ $Re\, s > 0$
33	$\frac{[t+(t^2+a^2)^{\frac{1}{2}}]^{\nu}}{t^{\frac{1}{2}}(t^2+a^2)^{\frac{1}{2}}}$	$(\frac{\pi}{2})^{\frac{3}{2}}a^{\nu}s^{\frac{1}{2}}[J_{-\frac{\nu}{2}+\frac{1}{4}}(\frac{as}{2})Y_{-\frac{\nu}{2}-\frac{1}{4}}(\frac{as}{2})$ $-J_{-\frac{\nu}{2}-\frac{1}{4}}(\frac{as}{2})Y_{-\frac{\nu}{2}+\frac{1}{4}}(\frac{as}{2})]$	$Re\, a > 0$ $Re\, s > 0$

Miscellaneous

34	$\frac{[1+(t^2+1)^{\frac{1}{2}}]^{\nu+\frac{1}{2}}}{t^{\nu+1}(t^2+1)^{\frac{1}{2}}}$	$2^{\frac{1}{2}}\Gamma(-\nu)D_{\nu}[(2is)^{\frac{1}{2}}]D_{\nu}[(-2is)^{\frac{1}{2}}]$	$Re\, \nu < 0$ $Re\, s > 0$

		f(t)	g(s)	
2 (Contd.)	35	$[(t+a)^{\frac{1}{2}}+t^{\frac{1}{2}}]^{\nu}-[(t+a)^{\frac{1}{2}}-t^{\frac{1}{2}}]^{\nu}$	$\nu a^{\frac{\nu}{2}} s^{-1} e^{\frac{as}{2}} K_{\frac{\nu}{2}}(\frac{as}{2})$	$\lvert\arg a\rvert < \pi$ $\mathrm{Re}\, s > 0$
2.1	1	$\frac{1+at}{t^{\frac{1}{2}}}$	$\frac{\pi^{\frac{1}{2}}(s+\frac{a}{2})}{s^{\frac{3}{2}}}$	$\mathrm{Re}\, s > 0$
	2	$\frac{t^{\frac{1}{2}}}{t+a}$	$\pi^{\frac{1}{2}} s^{-\frac{1}{2}} - \pi a^{\frac{1}{2}} e^{as}\, \mathrm{Erfc}(a^{\frac{1}{2}} s^{\frac{1}{2}})$	$\lvert\arg a\rvert < \pi$ $\mathrm{Re}\, s > 0$
	3	$\frac{1}{t^{\frac{1}{2}}(t+a)}$	$\pi a^{-\frac{1}{2}} e^{as}\, \mathrm{Erfc}(a^{\frac{1}{2}} s^{\frac{1}{2}})$	$\lvert\arg a\rvert < \pi$ $\mathrm{Re}\, s > 0$
	4	$\frac{t^{\nu}}{t+a}$	$\Gamma(\nu+1) a^{\nu} e^{as} \Gamma(-\nu, as)$	$\lvert\arg a\rvert < \pi$ $\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\, s > 0$
	5	$(t^2+a^2)^{\frac{1}{2}}-t$	$\frac{a\pi}{2s}[H_1(as)-Y_1(as)] - \frac{1}{as^2}$	$\lvert\arg a\rvert < \frac{\pi}{2}$ $\mathrm{Re}\, s > 0$
	6	$\frac{t}{(t^2+a^2)^{\frac{1}{2}}}$	$\frac{\pi a}{2}[H_1(as)-Y_1(as)] - a$	$\lvert\arg a\rvert < \frac{\pi}{2}$ $\mathrm{Re}\, s > 0$
	7	$\frac{t^{\nu}}{1+t^2}$	$\pi \operatorname{cosec}[(\nu+1)\pi] V_{\nu+1}(2s, 0)$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\, s > 0$
	8	$\frac{t+a}{(t^2+2at)^{\frac{1}{2}}}$	$a e^{as} K_1(as)$	$\lvert\arg a\rvert < \pi$ $\mathrm{Re}\, s > 0$
	9	$\frac{1}{(1+t\cos\theta)(t^2+2t)^{\frac{1}{2}}}$	$e^{2s\cos^2\frac{\theta}{2}}\left[\frac{\theta}{\sin\theta} - \int_0^s K_0(u) e^{-u\cos\theta}\, du\right]$	$\mathrm{Re}\, s > 0$
	10	$\frac{[t+(1+t^2)^{\frac{1}{2}}]^n}{(1+t^2)^{\frac{1}{2}}}$	$\frac{1}{2}[S_n(s) - \pi E_n(s) - \pi Y_n(s)]$	$n = 0, 1, 2, \ldots$ $\mathrm{Re}\, s > 0$
	11	$\frac{[t-(1+t^2)^{\frac{1}{2}}]^n}{(1+t^2)^{\frac{1}{2}}}$	$-\frac{1}{2}[S_n(s) + \pi E_n(s) + \pi Y_n(s)]$	$n = 0, 1, 2, \ldots$ $\mathrm{Re}\, s > 0$
	12	$[at+(1+a^2t^2)^{\frac{1}{2}}]^n + [at-(1+a^2t^2)^{\frac{1}{2}}]^n$	$\frac{2}{a} O_n(\frac{s}{a})$	$n = 0, 1, 2, \ldots$ $a > 0$ $\mathrm{Re}\, s > 0$

		f(t)	g(s)	
2.1 (Contd.)	13	$\frac{[at+(1+a^2t^2)^{\frac{1}{2}}]^n - [at-(1+a^2t^2)^{\frac{1}{2}}]^n}{(1+a^2t^2)^{\frac{1}{2}}}$	$\frac{1}{a} S_n(\frac{s}{a})$	$n = 0, 1, 2, \ldots$ $a > 0$ $\mathrm{Re}\, s > 0$
3	1	a^t	$\frac{1}{s - \log a}$	$\mathrm{Re}\, a > 0$ $\mathrm{Re}\, s > \mathrm{Re}\, \log\lvert a\rvert$
	2	e^{-at}	$\frac{1}{s+a}$	$\mathrm{Re}\, s > -\mathrm{Re}\, a$
	3	$t e^{-at}$	$\frac{1}{(s+a)^2}$	$\mathrm{Re}\, s > -\mathrm{Re}\, a$
	4	$\frac{1}{t} e^{-\frac{a}{t}}$	$2 K_0 (2a^{\frac{1}{2}} s^{\frac{1}{2}})$	$\mathrm{Re}\, a \geq 0$ $a \neq 0$ $\mathrm{Re}\, s > 0$
	5	$e^{bt} - e^{at}$	$\frac{b-a}{(s-a)(s-b)}$	$\mathrm{Re}\, s > \mathrm{Max}\, \mathrm{Re}\, a, \mathrm{Re}\, b$
	6	$b e^{bt} - a e^{at}$	$\frac{(b-a)s}{(s-a)(s-b)}$	$\mathrm{Re}\, s > \mathrm{Max}\, \mathrm{Re}\, a, \mathrm{Re}\, b$
	7	$(b-c)e^{at} + (c-a)e^{bt} + (a-b)e^{ct}$	$-\frac{(a-b)(b-c)(c-a)}{(s-a)(s-b)(s-c)}$	$\mathrm{Re}\, s > \mathrm{Max}\, \mathrm{Re}\, a, \mathrm{Re}\, b, \mathrm{Re}\, c$
	8	$e^{-at} + \omega e^{-\omega at} + \omega^2 e^{-\omega^2 at}$ where $\omega = -\frac{1}{2} + i\frac{3^{\frac{1}{2}}}{2}$	$\frac{3a^2}{s^3+a^3}$	$\mathrm{Re}\, s > \mathrm{Max} - \mathrm{Re}\, a,$ $\frac{1}{2}(\mathrm{Re}\, a + 3^{\frac{1}{2}}\lvert\mathrm{Im}\, a\rvert)$
	9	$e^{-at} + \omega^2 e^{-\omega at} + \omega e^{-\omega^2 at}$ where $\omega = -\frac{1}{2} + i\frac{3^{\frac{1}{2}}}{2}$	$\frac{-3as}{s^3+a^3}$	$\mathrm{Re}\, s > \mathrm{Max} - \mathrm{Re}\, a,$ $\frac{1}{2}(\mathrm{Re}\, a + 3^{\frac{1}{2}}\lvert\mathrm{Im}\, a\rvert)$
	10	$e^{-at} + e^{-\omega at} + e^{-\omega^2 at}$ where $\omega = -\frac{1}{2} + i\frac{3^{\frac{1}{2}}}{2}$	$\frac{3s^2}{s^3+a^3}$	$\mathrm{Re}\, s > \mathrm{Max} - \mathrm{Re}\, a,$ $\frac{1}{2}(\mathrm{Re}\, a + 3^{\frac{1}{2}}\lvert\mathrm{Im}\, a\rvert)$
	11	$\exp(-a e^t)$	$a^s \Gamma(-s, a)$	$\mathrm{Re}\, a > 0$ $\mathrm{Re}\, s > -\infty$
	12	$\exp(-a e^{-t})$	$a^{-s} \gamma(s, a)$	$\mathrm{Re}\, s > 0$

		$f(t)$	$g(s)$	
3 (Contd.)	13	$e^{-\frac{a}{t}}$	$2a^{\frac{1}{2}}s^{-\frac{1}{2}}K_1(2a^{\frac{1}{2}}s^{\frac{1}{2}})$	Re a > o Re s > o
	14	$e^{at}-1$	$\frac{a}{s(s-a)}$	Re s > Max o, Re a
	15	$(1-e^{-\frac{t}{a}})^n$	$\frac{n!}{s(as+1)_n}$	Re s > Max o, -n Re $\frac{1}{a}$ n = 0,1,2,...
	16	$(1-e^{-\frac{t}{a}})^\nu$	$aB(as,\nu+1)$	Re a > o Re ν > -1 Re s > o
	17	$1-4at\,e^{-at}$	$\frac{(s-a)^2}{s(s+a)^2}$	Re s > Max o, - Re a
	18	$t(1-e^{-t})^a$	$B(s,a+1)[\psi(s+a+1)-\psi(s)]$	Re a > - 1 Re s > o
	19	$1+2\frac{a+b}{a-b}(e^{-at}-e^{-bt})$	$\frac{(s-a)(s-b)}{s(s+a)(s+b)}$	Re s > Max o, - Re a, - Re b
	20	$\frac{1-e^{at}}{t}$	$\log\frac{s-a}{s}$	Re s > Max o, Re a
	21	$\frac{e^{-at}-e^{-bt}}{t}$	$\log\frac{s+b}{s+a}$	Re s > Max - Re a, - Re b
	22	$\frac{1}{1+e^{-t}}$	$\frac{1}{2}\psi(\frac{s+1}{2})-\frac{1}{2}\psi(\frac{s}{2})$	Re s > o
	23	$\frac{t}{1-e^{-t}}$	$\psi'(s)$ $=\zeta(2,s)$	Re s > o
	24	$\frac{1}{t}-\frac{a}{1-e^{-at}}$	$\psi(\frac{s}{a})-\log\frac{s}{a}$	Re s > o
	25	$(1-e^{-t})^\nu\exp(ae^{-t})$	$\frac{\Gamma(\nu+1)\Gamma(s)}{\Gamma(\nu+s+1)}a^{-\frac{\nu+s+1}{2}}e^{\frac{a}{2}}W_{\frac{\nu-s+1}{2},\frac{\nu+s}{2}}(a)$	Re ν > - 1 Re s > o

		$f(t)$	$g(s)$	
3 (Contd.)	26	$(1-e^{-t})^\nu\exp(-ae^{t})$	$\Gamma(\nu+1)a^{\frac{s-1}{2}}e^{-\frac{a}{2}}W_{-\frac{1+s+2\nu}{2},-\frac{s}{2}}(a)$	Re a > o Re ν > - 1 Re s > - ∞
	27	$(e^{t}-1)^\nu\exp[-\frac{a}{e^{t}-1}]$	$\Gamma(s-\nu)e^{\frac{a}{2}}a^{\frac{\nu}{2}}W_{\frac{\nu-2s}{2},\frac{\nu+1}{2}}(a)$	Re a > o Re s > Re ν
	28	$e^{(\mu-1)t}(1-e^{-t})^{\mu-\frac{1}{2}}[(1-e^{-t})\sin\theta$ $\mp(1-e^{-t})\cos\theta]^{\mu-\frac{1}{2}}$	$\frac{2^{\mu-1}\Gamma(\mu+\frac{1}{2})\Gamma(s-\mu+1)}{\pi^{\frac{1}{2}}\Gamma(s+\mu+1)}\sin^\mu\theta\,\cdot$ $\cdot\,e^{\pm(s+\frac{1}{2})i\theta\pm(\frac{\mu}{2}-\frac{1}{4})\pi i}\,\cdot$ $\cdot\,[\pi P_\nu^\mu(\cos\theta)\pm 2iQ_\nu^\mu(\cos\theta)]$	Re μ > - ½ Re s > Re (μ-1)
	29	$\frac{1-e^{-at}}{1-e^{-t}}$	$\psi(s+a)-\psi(s)$	Re s > Max o, - Re a
	30	$\frac{e^{-ct}-e^{-bt}}{1-e^{-at}}$	$\frac{1}{a}[\psi(\frac{s+b}{a})-\psi(\frac{s+c}{a})]$	Re a > o Re s > Max - Re b, - Re c
	31	$\frac{(1-e^{-at})(1-e^{-bt})}{1-e^{-t}}$	$\psi(s+a)+\psi(s+b)-\psi(s+a+b)-\psi(s)$	Re s > Max o, - Re a, - Re b, - Re (a+b)
	32	$\frac{1-e^{-at}}{t(1+e^{-t})}$	$\log\frac{\Gamma(\frac{s}{2})\Gamma(\frac{a+s+1}{2})}{\Gamma(\frac{s+1}{2})\Gamma(\frac{a+s}{2})}$	Re s > Max o, - Re a
	33	$\frac{e^{-at}-e^{-bt}}{t(1+e^{-\frac{t}{2}})}$	$\log\frac{\Gamma(s+a)\Gamma(s+b+\frac{1}{2})}{\Gamma(s+a+\frac{1}{2})\Gamma(s+b)}$	Re s > Max - Re a, - Re b
	34	$\frac{1-e^{t}+t\,e^{2t}}{t(e^{2t}-1)}$	$\log\frac{\Gamma(1+\frac{s}{2})}{\Gamma(\frac{1+s}{2})}-\frac{1}{2}\psi(\frac{s}{2})$	Re s > o
	35	$\frac{(1-e^{-at})(1-e^{-bt})}{t(1-e^{-t})}$	$\log\frac{\Gamma(s)\Gamma(s+a+b)}{\Gamma(s+a)\Gamma(s+b)}$	Re s > Max o, - Re a, - Re b, - Re (a+b)
	36	$\frac{(e^{-at}-e^{-bt})(1-e^{-ct})}{t(1-e^{-t})}$	$\log\frac{\Gamma(s+a)\Gamma(s+b+c)}{\Gamma(s+a+c)\Gamma(s+b)}$	Re s > Max - Re a, - Re b, - Re(a+c), - Re(b+c)

		$f(t)$	$g(s)$	
3(Contd.)	37	$\dfrac{(1-e^{-at})(1-e^{-bt})(1-e^{-ct})}{t(1-e^{-t})}$	$\log\dfrac{\Gamma(s)\Gamma(s+a+b)\Gamma(s+b+c)\Gamma(s+c+a)}{\Gamma(s+a)\Gamma(s+b)\Gamma(s+c)\Gamma(s+a+b+c)}$	$2\,\mathrm{Re}\,s > \lvert\mathrm{Re}\,a\rvert+\lvert\mathrm{Re}\,b\rvert+\lvert\mathrm{Re}\,c\rvert$
	38	$\dfrac{1}{1-e^{-at}}\left[\dfrac{e^{-bt}-e^{-ct}}{t}+(b-c)e^{-dt}\right]$	$\log\dfrac{\Gamma(\frac{s+b}{a})}{\Gamma(\frac{s+c}{a})}+\dfrac{c-b}{a}\psi(\frac{s+d}{a})$	$\mathrm{Re}\,a>0$ $\mathrm{Re}\,s>\mathrm{Max}-\mathrm{Re}\,b,\ -\mathrm{Re}\,c,\ -\mathrm{Re}\,d$
	39	$\dfrac{[a+(1-e^{-t})^{\frac12}]^{\nu}+[a-(1-e^{-t})^{\frac12}]^{\nu}}{(1-e^{-t})^{\frac12}}$	$2^{s+1}e^{(s+\nu)\pi i}\dfrac{\Gamma(s)}{\Gamma(-\nu)}(a^2-1)^{\frac{s+\nu}{2}}Q_{s-1}^{-\nu-s}(a)$ $=2^{s+\frac12}\pi^{\frac12}\Gamma(s)(a^2-1)^{\frac{s+\nu}{2}-\frac14}P^{\frac12-s}_{\nu+s-\frac12}\left[\dfrac{a}{(a^2-1)^{\frac12}}\right]$	$\mathrm{Re}\,s>0$
	40	$\dfrac{(1-e^{-t})^{\nu}}{(1-c\,e^{-t})^{\mu}}$	$B(s,\nu+1)\,{}_2F_1[\mu,s;s+\nu+1;c]$	$\mathrm{Re}\,\nu>-1$ $\lvert\arg(1-c)\rvert<\pi$ $\mathrm{Re}\,s>0$
	41	$\dfrac{(1-e^{-t})^{\nu}}{(1-c\,e^{-t})^{\mu}}\exp(a\,e^{-t})$	$\dfrac{\Gamma(\nu+1)\Gamma(s)}{\Gamma(\nu+s+1)}\Phi_1(s,\mu,\nu+1;c,a)$	$\mathrm{Re}\,\nu>-1$ $\lvert\arg(1-c)\rvert<\pi$ $\mathrm{Re}\,s>0$
	42	$\dfrac{e^{t}(e^{t}-1)^{\nu}}{[1-a(1-e^{-t})]^{\mu}}$	$B(\nu+1,s-\nu-1)\,{}_2F_1[\mu,\nu+1;s;a]$	$\lvert a\rvert<1$ $\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\,s>\mathrm{Re}\,(\nu+1)$
3.1	1	$t^{n}e^{-at}$	$\dfrac{n!}{(s+a)^{n+1}}$	$\mathrm{Re}\,s>-\mathrm{Re}\,a$
	2	$e^{-\frac{t^2}{a}}$	$\frac12(\pi a)^{\frac12}e^{\frac{as^2}{4}}\,\mathrm{Erfc}\,\dfrac{a^{\frac12}s}{2}$	$\mathrm{Re}\,a>0$ $\mathrm{Re}\,s>-\infty$
	3	$t\,e^{-\frac{t^2}{a}}$	$\dfrac{a}{s}-\dfrac{\pi^{\frac12}}{4}a^{\frac32}\,s\,e^{\frac{as^2}{4}}\,\mathrm{Erfc}\,\dfrac{a^{\frac12}s}{2}$	$\mathrm{Re}\,a>0$ $\mathrm{Re}\,s>-\infty$
	4	$\dfrac{1}{t^2}e^{-\frac{a}{t}}$	$2(\frac{s}{a})^{\frac12}K_1(2a^{\frac12}s^{\frac12})$	$\mathrm{Re}\,a>0$ $\mathrm{Re}\,s>0$

		$f(t)$	$g(s)$	
3.1 (Contd.)	5	$1-e^{-at}[1+\frac{at}{1!}+\dots+\frac{(at)^n}{n!}]$	$\dfrac{a^{n+1}}{s(s+a)^{n+1}}$	$n=0,1,2,\dots$ $\mathrm{Re}\,s>\mathrm{Max}\,0,\ -\mathrm{Re}\,a$
	6	$(1+bt)e^{-at}$	$\dfrac{s+b+a}{(s+a)^2}$	$\mathrm{Re}\,s>-\mathrm{Re}\,a$
	7	$e^{at}-[1+(a-b)t]e^{bt}$	$\dfrac{(a-b)^2}{(s-a)(s-b)^2}$	$\mathrm{Re}\,s>\mathrm{Max}\ \mathrm{Re}\,a,\mathrm{Re}\,b$
	8	$\dfrac{(at+1)e^{-at}-1}{t^2}$	$s\log(2+\frac{a}{s})-a$	$\mathrm{Re}\,s>-\mathrm{Re}\,a$
	9	$\dfrac{1}{t^2}(1-e^{-at})^2$	$(s+2a)\log(s+2a)+s\log s$ $-2(s+a)\log(s+a)$	$\mathrm{Re}\,s>\mathrm{Max}\,0,\ -\mathrm{Re}\,2a$
	10	$e^{-at}\dfrac{at+1}{t^2}-e^{-bt}\dfrac{bt+1}{t^2}$	$s\log\dfrac{s+a}{s+b}+b-a$	$\mathrm{Re}\,s>\mathrm{Max}-\mathrm{Re}\,a,\ -\mathrm{Re}\,b$
	11	$\dfrac{t^n}{1-e^{-\frac{t}{a}}}$	$(-a)^{n+1}\psi^{(n)}(as)$	$\mathrm{Re}\,a>0$ $n=0,1,2,\dots$ $\mathrm{Re}\,s>0$
	12	$\dfrac{a}{t}-\dfrac{(at+2)(1-e^{-at})}{2t^2}$	$(s+\frac{a}{2})\log(1+\frac{a}{s})-a$	$\mathrm{Re}\,s>-\mathrm{Re}\,a$
	13	$\dfrac{1}{t}\left(\dfrac{1}{1-e^{-t}}-\dfrac{1}{t}-\dfrac{1}{2}\right)$	$\log\dfrac{e^{s}\Gamma(s)}{(2\pi)^{\frac12}s^{s-\frac12}}$	$\mathrm{Re}\,s>0$
	14	$\dfrac{1}{1+e^{-t}}\left(\dfrac12-\dfrac1t+\dfrac{1}{e^{t}-1}\right)$	$\log(2\pi)^{\frac12}-\log B(\frac{s}{2},\frac12)-\frac12\psi(s)$	$\mathrm{Re}\,s>0$
	15	$\dfrac{1}{1-e^{-t}}\left(\dfrac{1}{e^{t}-1}-\dfrac1t+\dfrac12\right)$	$\sum_{k=0}^{\infty}[\log(s+k)-\psi(s+k)-\frac{1}{2(s+k)}]$	$\mathrm{Re}\,s>0$
	16	$(e^{t}-1)^{\nu}\exp[-\frac{a}{2}+\mu t-\frac{a}{e^{t}-1}]$	$a^{\frac{\nu}{2}}\Gamma(\mu+s)W_{-\mu-\frac{\nu}{2}-s,\ \frac{\nu+1}{2}}(a)$	$\mathrm{Re}\,a>0$ $\mathrm{Re}\,s>\mathrm{Re}(\mu+\nu)$

		f(t)	g(s)	
3.1 (Contd.)	17	$\dfrac{\exp[-\mu t-a(e^{t}-\frac{1}{2})]}{(e^{t}-1)^{\nu}}$	$\Gamma(1-\nu)a^{\frac{\nu-\mu+s-1}{2}}W_{\frac{\nu+\mu-1-s}{2},\frac{\nu-\mu+s}{2}}(a)$	Re $\nu < 1$ Re $a > o$ Re $s > -\infty$
	18	$\dfrac{d^n}{dt^n}\left(e^{-\frac{t^2}{2}}t^n\right)$	$n!s^n e^{\frac{s^2}{4}}D_{-n-1}(s)$	$n = 0,1,2,\ldots$ Re $s > -\infty$
3.2	1	$\dfrac{1}{t^{\frac{1}{2}}}e^{-at}$	$\dfrac{\pi^{\frac{1}{2}}}{(s+a)^{\frac{1}{2}}}$	Re $s > -$ Re a
	2	$t^{n-\frac{1}{2}}e^{-at}$	$\dfrac{\pi^{\frac{1}{2}}\cdot\frac{1}{2}\cdot\frac{3}{2}\cdots(n-\frac{1}{2})}{(s+a)^{n+\frac{1}{2}}}$	$n = 1,2,3,\ldots$ Re $s > -$ Re a
	3	$t^{\nu}e^{-at}$	$\dfrac{\Gamma(\nu+1)}{(s+a)^{\nu+1}}$	Re $\nu > -1$ Re $s > -$ Re a
	4	$\dfrac{e^{bt}-e^{at}}{t^{\frac{3}{2}}}$	$2\pi^{\frac{1}{2}}[(s-a)^{\frac{1}{2}}-(s-b)^{\frac{1}{2}}]$	Re $s >$ Max Re a, Re b
	5	$t^{\frac{1}{2}}e^{-\frac{a}{t}}$	$\dfrac{\pi^{\frac{1}{2}}(1+2a^{\frac{1}{2}}s^{\frac{1}{2}})}{2s^{\frac{3}{2}}e^{2a^{\frac{1}{2}}s^{\frac{1}{2}}}}$	Re $a > o$ Re $s > o$
	6	$\dfrac{1}{t^{\frac{1}{2}}}e^{-\frac{a}{t}}$	$(\frac{\pi}{s})^{\frac{1}{2}}e^{-2a^{\frac{1}{2}}s^{\frac{1}{2}}}$	Re $a > o$ Re $s > o$
	7	$\dfrac{1}{t^{\frac{3}{2}}}e^{-\frac{a}{t}}$	$(\frac{\pi}{a})^{\frac{1}{2}}e^{-2a^{\frac{1}{2}}s^{\frac{1}{2}}}$	Re $a > o$ Re $s > o$
	8	$t^{\nu}e^{-\frac{a}{t}}$	$2(\frac{a}{s})^{\frac{\nu+1}{2}}K_{\nu+1}(2a^{\frac{1}{2}}s^{\frac{1}{2}})$	Re $a > o$ Re $s > o$
	9	$\dfrac{1}{t^{\frac{1}{2}}}(e^{-\frac{a}{t}}-1)$	$(\frac{\pi}{s})^{\frac{1}{2}}(e^{-2a^{\frac{1}{2}}s^{\frac{1}{2}}}-1)$	Re $a > o$ Re $s > o$
	10	$e^{-at^{\frac{1}{2}}}$	$\dfrac{1}{s}-\dfrac{\pi^{\frac{1}{2}}a}{2s^{\frac{3}{2}}}e^{\frac{a^2}{4s}}\operatorname{Erfc}\dfrac{a}{2s^{\frac{1}{2}}}$	Re $a > o$ Re $s > o$

		f(t)	g(s)	
3.2 (Contd.)	11	$t^{\frac{1}{2}}e^{-at^{\frac{1}{2}}}$	$\dfrac{\pi^{\frac{1}{2}}(a^2+2s)e^{\frac{a^2}{4s}}}{4s^{\frac{5}{2}}}\operatorname{Erfc}\dfrac{a}{2s^{\frac{1}{2}}}-\dfrac{a}{2s^2}$	Re $a > o$ Re $s > o$
	12	$\dfrac{1}{t^{\frac{1}{2}}}e^{-at^{\frac{1}{2}}}$	$(\frac{\pi}{s})^{\frac{1}{2}}e^{\frac{a^2}{4s}}\operatorname{Erfc}\dfrac{a}{2s^{\frac{1}{2}}}$	Re $a > o$ Re $s > o$
	13	$\dfrac{1}{t^{\frac{3}{4}}}e^{-at^{\frac{1}{2}}}$	$\dfrac{a}{2^{\frac{3}{2}}s^{\frac{1}{2}}}e^{\frac{a^2}{8s}}K_{\frac{1}{4}}(\frac{a^2}{8s})$	Re $a > o$ Re $s > o$
	14	$t^{\nu}e^{-at^{\frac{1}{2}}}$	$\dfrac{\Gamma(2\nu+2)}{2^{\nu}s^{\nu+1}}e^{\frac{a^2}{8s}}D_{-2\nu-2}\left[\left(\dfrac{a^2}{2s}\right)^{\frac{1}{2}}\right]$	Re $a > o$ Re $\nu > -1$ Re $s > o$
	15	$\dfrac{t^{\nu}}{1+e^{t}}$	$\Gamma(\nu+1)\sum\limits_{k=1}^{\infty}\dfrac{(-1)^{k-1}}{(s+k)^{\nu+1}}$	Re $\nu > 0$ Re $s > -1$
	16	$\dfrac{t^{\nu}}{e^{t}-1}$	$\Gamma(\nu+1)\sum\limits_{k=1}^{\infty}\dfrac{1}{(s+k)^{\nu+1}}$	Re $\nu > o$ Re $s > -1$
	17	$\dfrac{t^{\nu}}{1-a\,e^{-t}}$	$\Gamma(\nu+1)\sum\limits_{k=o}^{\infty}\dfrac{a^k}{(s+k)^{\nu+1}}$	Re $\nu > -1$ $\lvert a\rvert < 1$ Re $s > o$
	18	$\dfrac{t^{\nu}}{1-e^{-at}}$	$\dfrac{\Gamma(\nu+1)\zeta(\nu+1,\frac{s}{a})}{a^{\nu+1}}$	Re $a > o$ Re $\nu > o$ Re $s > o$
	19	$\dfrac{1}{t^{\frac{1}{2}}}\dfrac{d^n}{da^n}e^{-\frac{a^2}{4t}}$	$(-1)^n\pi^{\frac{1}{2}}s^{\frac{n-1}{2}}e^{-as^{\frac{1}{2}}}$	Re $s > o$
	20	$\dfrac{e^{at}}{t^{\frac{1}{2}}}+\dfrac{e^{bt}}{t^{\frac{1}{2}}}+\dfrac{e^{ct}}{t^{\frac{1}{2}}}$	$\dfrac{\pi^{\frac{3}{2}}}{[(s-a)(s-b)(s-c)]^{\frac{1}{2}}}$	Re $s >$ Max Re a, Re b, Re c
	21	$1-e^{-at^{\frac{1}{2}}}$	$\dfrac{a\pi^{\frac{1}{2}}}{2s^{\frac{3}{2}}}e^{\frac{a^2}{4s}}\operatorname{Erfc}(\dfrac{a}{2s^{\frac{1}{2}}})$	Re $s > o$
3.2.1	1	$\dfrac{1}{t^{\frac{1}{2}}}[e^{-\frac{(a-b)^2}{4t}}-e^{-\frac{(a+b)^2}{4t}}]$	$2(\frac{\pi}{s})^{\frac{1}{2}}e^{-as^{\frac{1}{2}}}\sinh(bs^{\frac{1}{2}})$	$o < b < a$ Re $s > o$

		$f(t)$	$g(s)$	
3.2.1 (Contd.)	2	$\frac{1}{t^{\frac{1}{2}}} e^{-at^2}$	$\frac{s^{\frac{1}{2}}}{2a^{\frac{1}{2}}} e^{\frac{s^2}{8a}} K_{\frac{1}{4}}\left(\frac{s^2}{8a}\right)$	Re s > $\begin{cases} -\infty \text{ for } \lvert \arg a \rvert < \frac{\pi}{4}, \frac{3\pi}{4} < \arg a < \frac{5\pi}{4} \\ o \text{ for } \arg a = \frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4} \\ \infty \text{ otherwise} \end{cases}$
	3	$t^{\nu} e^{-at^2}$	$\frac{\Gamma(\nu+1)}{(2a)^{\frac{\nu+1}{2}}} e^{\frac{s^2}{8a}} D_{-\nu-1}\left(\frac{s}{2^{\frac{1}{2}} a^{\frac{1}{2}}}\right)$	Re s > $\begin{cases} -\infty \text{ for } \lvert \arg a \rvert < \frac{\pi}{4}, \frac{3\pi}{4} < \arg a < \frac{5\pi}{4} \\ o \text{ for } \arg a = \frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4} \\ \infty \text{ otherwise} \end{cases}$ Re ν > − 1
	4	$\frac{1}{t^{\frac{3}{2}}}(a-\frac{t}{2}) e^{-\frac{a}{t}}$	$\pi^{\frac{1}{2}} s^{\frac{1}{2}} e^{-2a^{\frac{1}{2}} s^{\frac{1}{2}}}$	Re a > o Re s > o
	5	$\frac{1}{t^{\frac{3}{2}}}(\frac{2a}{t} - 3) e^{-\frac{a}{t}}$	$\frac{2\pi^{\frac{1}{2}}}{a^{\frac{1}{2}}} s e^{-2a^{\frac{1}{2}} s^{\frac{1}{2}}}$	Re a > o Re s > o
	6	$\frac{e^{-\frac{a}{t}}}{t^{\frac{7}{2}}}(4a^2-6at+3t^2)$	$4\pi^{\frac{1}{2}} s^{\frac{3}{2}} e^{-2a^{\frac{1}{2}} s^{\frac{1}{2}}}$	Re s > o Re a > o
	7	$\frac{1}{t^{\frac{1}{2}}}(e^{-\frac{b}{t}} - e^{-\frac{a}{t}})$	$2(\frac{\pi}{s})^{\frac{1}{2}} e^{(b^{\frac{1}{2}} a^{\frac{1}{2}}) s^{\frac{1}{2}}} \sinh[(a^{\frac{1}{2}}+b^{\frac{1}{2}}) s^{\frac{1}{2}}]$	Re a > o Re b > o Re s > o
4	1	$\log t$	$-\frac{1}{s} \log(\gamma s)$	Re s > o
	2	$(\log t)^2$	$\frac{1}{s}\left\{\frac{\pi^2}{6} + [\log(\gamma s)]^2\right\}$	Re s > o
	3	$\frac{\log(\gamma t)-1}{t}$	$-\frac{\log s}{s^2}$	Re s > o
	4	$t\left\{[1-\log(\gamma t)]^2 + 1 - \frac{\pi^2}{6}\right\}$	$\left(\frac{\log s}{s}\right)^2$	Re s > o
	5	$-[\log(\gamma t)]^3 + \frac{\pi^2}{2}\log(\gamma t) + \psi''(1)$	$\frac{(\log s)^3}{s}$	Re s > o
	6	$t\left[\left\{1-\log(\gamma t)\right\}^3 + \left(\frac{\pi^2}{2}-3\right)\log(\gamma t) + 5 - \frac{\pi^2}{2} + \psi''(1)\right]$	$\frac{(\log s)^3}{s^2}$	Re s > o

		$f(t)$	$g(s)$	
4.1	1	$t^n \log t$	$\frac{n!}{s^{n+1}}[1+\frac{1}{2}+\frac{1}{3}+\dots+\frac{1}{n} - \log(\gamma s)]$	n = 1,2,3,... Re s > o
	2	$t^n[1+\frac{1}{2}+\frac{1}{3}+\dots+\frac{1}{n} - \log(\gamma t)]$	$\frac{n! \log s}{s^{n+1}}$	n = 1,2,3,... Re s > o
	3	$\log(t+a)$	$\frac{1}{s}[\log a - e^{as} \mathrm{Ei}(-as)]$	$\lvert \arg a \rvert < \pi$ Re s > o
	4	$\log(1+at)$	$-\frac{1}{s} e^{\frac{s}{a}} \mathrm{Ei}(-\frac{s}{a})$	$\lvert \arg a \rvert < \pi$ Re s > o
	5	$\log\lvert b-t \rvert$	$\frac{1}{s}[\log b - e^{-bs} \overline{\mathrm{Ei}}(bs)]$	b > o Re s > o
	6	$\log(t^2-a^2)$	$\frac{1}{s}[\log(a^2) - e^{as}\mathrm{Ei}(-as) - e^{-as}\mathrm{Ei}(as)]$	$\lvert \mathrm{Im}\, a \rvert > o$ Re s > o
	7	$\log(1+\frac{t^2}{a^2})$	$\frac{2}{s}[\mathrm{ci}(as)\cos(as) - \mathrm{si}(as)\sin(as)]$	Re a > o Re s > o
	8	$\log(t^2+a^2)$	$\frac{2}{s}[\log a - \mathrm{ci}(as)\cos(as) - \mathrm{si}(as)\sin(as)]$	Re s > o
	9	$\log\lvert t^2-a^2 \rvert$	$\frac{1}{s}[\log(a^2) - e^{as}\mathrm{Ei}(-as) - e^{-as}\overline{\mathrm{Ei}}(as)]$	Re s > o Re a > o
	10	$\frac{1}{t}\log(1+a^2t^2)$	$[\mathrm{ci}(\frac{s}{a})]^2 + [\mathrm{si}(\frac{s}{a})]^2$	Re s > o
	11	$\frac{1}{t}\log\lvert 1-a^2t^2 \rvert$	$\overline{\mathrm{Ei}}(\frac{s}{a})\mathrm{Ei}(-\frac{s}{a})$	Re s > o
	12	$\frac{1}{t}\log(1-t^2)$	$-S(1,s)S(1,-s)$	Re s > o
	13	$\frac{\log[(t+a)(t+b)]}{t+a+b}$	$e^{(a+b)s}[\mathrm{Ei}(-as)\mathrm{Ei}(-bs) - \log(ab)\mathrm{Ei}(-as-bs)]$	$\lvert \arg(a+b) \rvert < \pi$ a ≠ o b ≠ o Re s > o

		$f(t)$	$g(s)$	
4.1 (Contd.)	14	$\log \frac{\frac{(t+a)(t+b)}{ab}}{t+a+b}$	$e^{(a+b)s}\mathrm{Ei}(-as)\mathrm{Ei}(-bs)$	$\lvert\arg(a+b)\rvert < \pi$ $a \neq 0$ $b \neq 0$ $\mathrm{Re}\, s > 0$
4.2	1	$\frac{1}{t^{\frac{1}{2}}}\log t$	$-(\frac{\pi}{s})^{\frac{1}{2}}\log(4\gamma s)$	$\mathrm{Re}\, s > 0$
	2	$t^{n-\frac{1}{2}}\log t$	$\frac{\pi^{\frac{1}{2}}\, 1.3.5.\cdots(2n-1)}{s^{n+\frac{1}{2}}2^n}\left[2\left(1+\frac{1}{3}+\frac{1}{5}+\cdots+\frac{1}{2n-1}\right) - \log(4\gamma s)\right]$	$n = 1,2,3,\ldots$ $\mathrm{Re}\, s > 0$
	3	$t^{n-\frac{1}{2}}[2(1+\frac{1}{3}+\cdots+\frac{1}{2n-1})-\log(4\gamma t)]$	$\frac{1.3.5.\cdots(2n-1)\pi^{\frac{1}{2}}\log s}{2^n s^{n+\frac{1}{2}}}$	$n = 1,2,3,\ldots$ $\mathrm{Re}\, s > 0$
	4	$t^{\nu}\log t$	$\Gamma(\nu+1)s^{-\nu-1}[\psi(\nu+1)-\log s]$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\, s > 0$
	5	$t^{\nu}[\psi(\nu+1)-\log t]$	$\Gamma(\nu+1)\,\frac{\log s}{s^{\nu+1}}$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\, s > 0$
	6	$\log \frac{t^{\frac{1}{2}}+(t+a)^{\frac{1}{2}}}{a^{\frac{1}{2}}}$	$\frac{1}{2s}e^{\frac{as}{2}}K_0(\frac{as}{2})$	$\lvert\arg a\rvert < \pi$ $\mathrm{Re}\, s > 0$
	7	$\log \frac{(t+ib)^{\frac{1}{2}}+(t-ib)^{\frac{1}{2}}}{(2b)^{\frac{1}{2}}}$	$\frac{\pi}{4s}[H_0(bs)-Y_0(bs)]$	$b > 0$ $\mathrm{Re}\, s > 0$
4.3	1	$\log \frac{1+e^t}{2}$	$\frac{1}{2s}[\psi(\frac{s+1}{2})-\psi(\frac{s}{2})]$	$\mathrm{Re}\, s > 0$
	2	$\log[\gamma(e^{\frac{t}{a}}-1)]$	$-\frac{1}{s}\psi(as)$	$\mathrm{Re}\, a > 0$ $\mathrm{Re}\, s > 0$
	3	$\log \frac{at}{e^{at}-1}$	$\frac{1}{s}[\psi(\frac{s}{a})-\log\frac{s}{a}]$	$\mathrm{Re}\, s > 0$

		$f(t)$	$g(s)$	
4.3 (Contd.)	4	$\frac{\log(1+e^{-t})}{1+e^{-t}}$	$\sum_{k=1}^{\infty}\frac{(-1)^{k-1}}{s+k}[\psi(k+1)+\log\gamma]$	$\mathrm{Re}\, s > 0$
	5	$t^{\nu}\log\frac{1+e^{-t}}{1-e^{-t}}$	$\Gamma(\nu+1)\sum_{k=1}^{\infty}\frac{(-1)^k}{n}[\zeta(\nu+1,s)-\zeta(\nu+1,s+k)]$	$\mathrm{Re}\, s > 0$
	6	$\frac{\log(1-e^{-t})}{1+e^{-t}}$	$\sum_{k=1}^{\infty}\frac{(-1)^k}{s+k}[1-\frac{1}{2}+\frac{1}{3}-\cdots+\frac{(-1)^{k-1}}{k}]$	$\mathrm{Re}\, s > 0$
	7	$[\log\gamma(e^t-1)]^2-\frac{\pi^2}{6}-t\log(e^t-1)+1+\log(e^t-1)$	$\frac{\psi^2(s)}{s}$	$\mathrm{Re}\, s > 0$
5	1	$\sin(at)$	$\frac{a}{s^2+a^2}$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
	2	$\frac{1}{t}\sin(at)$	$\tan^{-1}(\frac{a}{s})$ $=\cot^{-1}(\frac{s}{a})$ $=\sin^{-1}\frac{a}{(s^2+a^2)^{\frac{1}{2}}}$ $=\cos^{-1}\frac{s}{(s^2+a^2)^{\frac{1}{2}}}$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
	3	$\lvert\sin(at)\rvert$	$\frac{a}{s^2+a^2}\coth(\frac{\pi s}{2a})$ $=\frac{a}{s^2+a^2}\cdot\frac{1+e^{-\frac{\pi s}{a}}}{1-e^{-\frac{\pi s}{a}}}$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
	4	$\frac{1}{t}\sin^2(at)$	$\frac{1}{4}\log(1+\frac{4a^2}{s^2})$	$\mathrm{Re}\, s > 2\lvert\mathrm{Im}\, a\rvert$
	5	$\sin^3(at)$	$\frac{6a^3}{(s^2+a^2)(s^2+9a^2)}$	$\mathrm{Re}\, s > 3\lvert\mathrm{Im}\, a$
	6	$\frac{1}{t}\sin^3(at)$	$\frac{3}{4}\tan^{-1}\frac{a}{s}-\frac{1}{4}\tan^{-1}\frac{3a}{s}$	$\mathrm{Re}\, s > 3\lvert\mathrm{Im}\, a\rvert$

		f(t)	g(s)	
(Contd.)	7	$\frac{1}{t}\sin^4(at)$	$\frac{1}{8}\log\frac{(s^2+4a^2)^2}{s^3}-\frac{1}{16}\log(s^2+16a^2)$	Re s > 4|Im a|
	8	$\frac{1}{t}\sin^5(at)$	$\frac{5}{8}\tan^{-1}\frac{a}{s}-\frac{5}{16}\tan^{-1}\frac{3a}{s}+\frac{1}{16}\tan^{-1}\frac{5a}{s}$	Re s > 5|Im a|
	9	$\sin^{2n}(at)$	$\frac{(2n)!\,a^{2n}}{s[s^2+(2a)^2][s^2+(4a)^2]\cdots[s^2+(2na)^2]}$	n = 1,2,3,... Re s > 2n|Im a|
	10	$\sin^{2n+1}(at)$	$\frac{(2n+1)!\,a^{2n+1}}{[s^2+a^2][s^2+(3a)^2]\cdots[s^2+((2n+1)a)^2]}$	n = 0,1,2,... Re s > (2n+1)|Im a|
	11	$\sin^{\frac{1}{2}}t$	$\frac{\pi^{\frac{1}{2}}\Gamma(-\frac{1}{4}-\frac{is}{2})}{(i-1)(1-2is)\Gamma(\frac{1}{4}-\frac{is}{2})}$	Re s > o
	12	$\sin^{\nu}(at)$	$\frac{\Gamma(\nu+1)\Gamma\left(-\frac{a\nu+is}{2a}\right)}{(2i)^{\nu+1}\Gamma\left(1+\frac{a\nu-is}{2a}\right)}$	Re ν > −1 Re s > Max 2 Im a + Im a ν, −Im a ν
	13	$\|\sin(at)\|^{\nu}$	$\frac{B(1+\frac{is}{2a},1-\frac{is}{2a})}{(\nu+1)2^{\nu}s\,B(\frac{\nu}{2}+1+\frac{is}{2a},\frac{\nu}{2}+1-\frac{is}{2a})}$	Re s > |Im a| Re ν > −1
	14	$1-2\sin(at)$	$\frac{(s-a)^2}{s(s^2+a^2)}$	Re s > |Im a|
	15	$\sin at+\|\sin(at)\|$	$\frac{2a}{s^2+a^2}\,\frac{1}{1-e^{-\frac{\pi}{a}s}}$	Re s > |Im a|
	16	$\|\sin(at)\|-\sin(at)$	$\frac{2a}{s^2+a^2}\,\frac{1}{e^{\frac{\pi}{a}s}-1}$	Re s > |Im a|
	17	$a\sin(at)-b\sin(bt)$	$\frac{(a^2-b^2)s^2}{(s^2+a^2)(s^2+b^2)}$	Re s > Max |Im a|, |Im b|

		f(t)	g(s)	
5 (Contd.)	18	$a\sin(bt)-b\sin(at)$	$\frac{ab(a^2-b^2)}{(s^2+a^2)(s^2+b^2)}$	Re s > Max |Im a|, |Im b|
	19	$\frac{\sin(at)+\sin(bt)}{t}$	$\frac{1}{2}\log\frac{s^2+a^2}{s^2+b^2}$	Re s > Max |Im a|, |Im b|
	20	$\sin(at)\sin(bt)$	$\frac{2abs}{[s^2+(a+b)^2][s^2+(a-b)^2]}$	Re s > |Im(±a±b)|
	21	$\frac{\sin(at)\sin(bt)}{t}$	$\frac{1}{4}\log\frac{s^2+(a+b)^2}{s^2+(a-b)^2}$	Re s > |Im(±a±b)|
	22	$\sum_{n=1}^{\infty}\frac{(-1)^{n-1}}{n-\frac{1}{2}}\sin\frac{(n-\frac{1}{2})\pi b}{a}\sin\frac{(n-\frac{1}{2})\pi t}{a}$	$\frac{\pi\sinh(bs)}{2a\cosh(as)}$	o < b < a Re s > o
	23	$\frac{\sin((2n+1)t)}{\sin t}$	$\frac{1}{s}+\sum_{m=1}^{n}\frac{2s}{s^2+4m^2}$	n = 1,2,3,... Re s > o
	24	$\cos(at)$	$\frac{s}{s^2+a^2}$	Re s > |Im a|
	25	$\|\cos(at)\|$	$\frac{s+a\,\mathrm{cosech}(\frac{\pi s}{2a})}{s^2+a^2}$ $=\frac{a}{s^2+a^2}\left(\frac{s}{a}+\frac{2e^{-\frac{\pi s}{2a}}}{1-e^{-\frac{\pi s}{a}}}\right)$	Re s > |Im a|
	26	$\cos^2(at)$	$\frac{s^2+2a^2}{s(s^2+4a^2)}$	Re s > 2|Im a|
	27	$\cos^3(at)$	$\frac{s(s^2+7a^2)}{(s^2+a^2)(s^2+9a^2)}$	Re s > 3|Im a|
	28	$\cos^{2n}(at)$	$\frac{(2n)!\,a^{2n}\left\{1+\frac{s^2}{2!\,a^2}+\cdots+\frac{s^2[s^2+4a^2]\cdots[s^2+4(na-a)^2]}{(2n)!\,a^{2n}}\right\}}{s[s^2+(2a)^2][s^2+(4a)^2]\cdots[s^2+(2na)^2]}$	n = 1,2,3,... Re s > 2n|Im a|

		$f(t)$	$g(s)$	
5 (Contd.)	29	$\cos^{2n+1}(at)$	$\dfrac{(2n+1)!a^{2n}s\left\{1+\dfrac{s^2+a^2}{3!a^2}+\cdots+\dfrac{[s^2+a^2][s^2+(3a)^2]\cdots[s^2+(2na-a)^2]}{(2n+1)!a^{2n}}\right\}}{[s^2+a^2][s^2+(3a)^2]\cdots[s^2+(2na+a)^2]}$	$n=0,1,2,\ldots$ Re $s>(2n+1)\lvert \mathrm{Im}\, a\rvert$
	30	$1-\cos(at)$	$\dfrac{a^2}{s(s^2+a^2)}$	Re $s>\lvert \mathrm{Im}\, a\rvert$
	31	$\frac{1}{t}(1-\cos at)$	$\frac{1}{2}\log(1+\frac{a^2}{s^2})$	Re $s>\lvert \mathrm{Im}\, a\rvert$
	32	$\cos(bt)-\cos(at)$	$\dfrac{s(a^2-b^2)}{(s^2+a^2)(s^2+b^2)}$	Re $s>$ Max $\lvert \mathrm{Im}\, a\rvert$, $\lvert \mathrm{Im}\, b\rvert$
	33	$a^2\cos(at)-b^2\cos(bt)$	$\dfrac{(a^2-b^2)s^3}{(s^2+a^2)(s^2+b^2)}$	Re $s>$ Max $\lvert \mathrm{Im}\, a\rvert$, $\lvert \mathrm{Im}\, b\rvert$
	34	$\sin(at)-at\cos(at)$	$\dfrac{2a^3}{(s^2+a^2)^2}$	Re $s>\lvert \mathrm{Im}\, a\rvert$
	35	$\dfrac{\cos(at)-\cos(bt)}{t}$	$\frac{1}{2}\log\dfrac{s^2+b^2}{s^2+a^2}$	Re $s>$ Max $\lvert \mathrm{Im}\, a\rvert$, $\lvert \mathrm{Im}\, b\rvert$
	36	$\lvert\cos(at)\rvert-\cos(at)$	$\dfrac{a\,\mathrm{cosech}\,\frac{\pi s}{2a}}{s^2+a^2}$	Re $s>\lvert \mathrm{Im}\, a\rvert$
	37	$\cos(at)\cos(bt)$	$\dfrac{s(s^2+a^2+b^2)}{[s^2+(a+b)^2][s^2+(a-b)^2]}$	Re $s>\lvert \mathrm{Im}(\pm a\pm b)\rvert$
	38	$1+\frac{2}{\pi}\sum_{n=1}^{\infty}\dfrac{(-1)^n}{n-\frac{1}{2}}\cos\dfrac{(n-\frac{1}{2})\pi b}{a}\cos\dfrac{(n-\frac{1}{2})\pi t}{a}$	$\dfrac{\cosh(bs)}{s\cosh(as)}$	$-a<b<a$ Re $s>0$
	39	$\cos(at)\sin(bt)$	$\dfrac{b(s^2-a^2+b^2)}{[s^2+(a+b)^2][s^2+(a-b)^2]}$	Re $s>\lvert \mathrm{Im}(\pm a\pm b)\rvert$
	40	$\dfrac{\sin(at)\cos(bt)}{t}$	$\frac{1}{2}\tan^{-1}\dfrac{2as}{s^2-a^2+b^2}$	Re $>$ Max $\lvert \mathrm{Im}(a+b)\rvert$, $\lvert \mathrm{Im}(a-b)\rvert$

		$f(t)$	$g(s)$	
5 (Contd.)	41	$\dfrac{\sin^2(at)\cos(bt)}{t}$	$\frac{1}{8}\log\dfrac{[s^2+(2a+b)^2][s^2+(2a-b)^2]}{(s^2+b^2)^2}$	Re $s>$ Max $\lvert \mathrm{Im}(2a+b)\rvert$, $\lvert \mathrm{Im}(2a-b)\rvert$, $\lvert \mathrm{Im}\, b\rvert$
	42	$\tan t\cos[(2n+1)t]$	$\dfrac{2n+1}{s^2+(2n+1)^2}+2\sum_{m=0}^{n-1}\dfrac{(-1)^m(2m+1)}{s^2+(2m+1)^2}$	$n=1,2,3,\ldots$ Re $s>0$
5.1	1	$t^n\sin(at)$	$n!\dfrac{s^{n+1}}{(s^2+a^2)^{n+1}}\sum_{0\le 2m\le n}(-1)^m\binom{n+1}{2m+1}\left(\frac{a}{s}\right)^{2m+1}$	$n=0,1,2,\ldots$ Re $s>\lvert \mathrm{Im}\, a\rvert$
	2	$\frac{1}{t^2}\sin^2(at)$	$a\tan^{-1}\frac{2a}{s}-\frac{s}{4}\log(1+\frac{4a^2}{s^2})$	Re $s>2\lvert \mathrm{Im}\, a\rvert$
	3	$\frac{1}{t^2}\sin^3(at)$	$\frac{s}{4}\tan^{-1}\frac{3a}{s}-\frac{3s}{4}\tan^{-1}\frac{a}{s}+\frac{3a}{8}\log\dfrac{s^2+9a^2}{s^2+a^2}$	Re $s>3\lvert \mathrm{Im}\, a\rvert$
	4	$\sin(at+b)$	$\dfrac{\sin(b+\tan^{-1}\frac{a}{s})}{(s^2+a^2)^{\frac{1}{2}}}=\dfrac{s\sin b+a\cos b}{s^2+a^2}$	Re $s>\lvert \mathrm{Im}\, a\rvert$
	5	$\frac{1}{t}\sin(t^2)$	$\frac{\pi}{2}[\frac{1}{2}-C(\frac{s^2}{4})]^2+\frac{\pi}{2}[\frac{1}{2}-S(\frac{s^2}{4})]^2=\frac{1}{2}D_{-1}[(\frac{1}{2})^{\frac{1}{2}}s]D_{-1}[(-\frac{1}{2})^{\frac{1}{2}}s]$	Re $s>0$
	6	$\sin(t^2)$	$\left(\frac{\pi}{2}\right)^{\frac{1}{2}}\left[\cos(\frac{s^2}{4})\left\{\frac{1}{2}-C(\frac{s^2}{4})\right\}+\sin(\frac{s^2}{4})\left\{\frac{1}{2}-S(\frac{s^2}{4})\right\}\right]$	Re $s>0$
	7	$\dfrac{\sin(at)\sin(bt)}{t^2}$	$\frac{a}{2}\tan^{-1}\dfrac{2bs}{s^2+a^2-b^2}+\frac{b}{2}\tan^{-1}\dfrac{2as}{s^2-a^2+b^2}+\frac{s}{4}\log\dfrac{s^2+(a-b)^2}{s^2+(a+b)^2}$	Re $s>\lvert \mathrm{Im}(\pm a\pm b)\rvert$
	8	$t^n\cos(at)$	$\dfrac{n!s^{n+1}}{(s^2+a^2)^{n+1}}\sum_{0\le 2m\le n+1}(-1)^m\binom{n+1}{2m}\left(\frac{a}{s}\right)^{2m}$	$n=0,1,2,\ldots$ Re $s>\lvert \mathrm{Im}\, a\rvert$
	9	$\cos(at+b)$	$\dfrac{\cos(b+\tan^{-1}\frac{a}{s})}{(s^2+a^2)^{\frac{1}{2}}}=\dfrac{s\cos b-a\sin b}{s^2+a^2}$	Re $s>\lvert \mathrm{Im}\, a\rvert$

		$f(t)$	$g(s)$	
5.1 (Contd.)	10	$\cos(t^2)$	$\left(\frac{\pi}{2}\right)^{\frac{1}{2}}\left[\cos\left(\frac{s^2}{4}\right)\left\{\frac{1}{2}-S\left(\frac{s^2}{4}\right)\right\}-\sin\left(\frac{s^2}{4}\right)\left\{\frac{1}{2}-C\left(\frac{s^2}{4}\right)\right\}\right]$	Re s > o
	11	$\frac{1-\cos(at)}{t^2}$	$a\tan^{-1}\frac{a}{s}-\frac{s}{2}\log\left(1+\frac{a^2}{s^2}\right)$	Re s > |Im a|
	12	$\frac{\cos(at)-\cos(bt)}{t^2}$	$\frac{s}{2}\log\frac{s^2+a^2}{s^2+b^2}+b\tan^{-1}\frac{b}{s}-a\tan^{-1}\frac{a}{s}$	Re s > Max |Im a|,|Im b|
	13	$t\sin(at)-at^2\cos(at)$	$\frac{8a^3s}{(s^2+a^2)^3}$	Re s > |Im a|
	14	$(3-a^2t^2)\sin(at)-3at\cos(at)$	$\frac{8a^5}{(s^2+a^2)^3}$	Re s > |Im a|
	15	$(1+a^2t^2)\sin(at)-at\cos(at)$	$\frac{8a^3s^2}{(s^2+a^2)^3}$	Re s > |Im a|
	16	$\frac{at\cos(at)-\sin(at)}{t^2}$	$s\tan^{-1}\frac{a}{s}-a$	Re s > |Im a|
	17	$\frac{\cos(at)-1}{t^2}+\frac{a\sin(at)}{t}$	$\frac{s}{2}\log\frac{s^2+a^2}{s^2}$	Re s > |Im a|
	18	$\frac{\sin at[2at\cos(at)-\sin(at)]}{t^2}$	$\frac{s}{4}\log\left(1+\frac{4a^2}{s^2}\right)$	Re s > 2|Im a|
	19	$\frac{1}{t^2}[\cos(bt)+bt\sin(bt)-\cos(at)-at\sin(at)]$	$\frac{s}{2}\log\frac{s^2+b^2}{s^2+a^2}$	Re s > Max |Im a|,|Im b|
5.2	1	$\frac{1}{t^{\frac{1}{2}}}\sin at$	$\left(\frac{\pi}{2}\right)^{\frac{1}{2}}\left[\frac{(s^2+a^2)^{\frac{1}{2}}-s}{s^2+a^2}\right]^{\frac{1}{2}}$	Re s > |Im a|
	2	$\frac{1}{t^{\frac{3}{2}}}\sin(at)$	$(2\pi)^{\frac{1}{2}}[(s^2+a^2)^{\frac{1}{2}}-s]^{\frac{1}{2}}$	Re s > |Im a|

		$f(t)$	$g(s)$	
5.2 (Contd.)	3	$t^{\nu}\sin(at)$	$\frac{1}{2}\Gamma(\nu+1)[(s+ia)^{-\nu-1}-(s-ia)^{-\nu-1}]$ $=\Gamma(\nu+1)(s^2+a^2)^{-\frac{\nu+1}{2}}\sin[(\nu+1)\tan^{-1}(\frac{a}{s})]$	Re ν > -2 Re s > |Im a|
	4	$\sin(at^{\frac{1}{2}})$	$\frac{a\pi^{\frac{1}{2}}}{2}s^{-\frac{3}{2}}e^{-\frac{a^2}{4s}}$	Re s > o
	5	$t^{\frac{1}{2}}\sin(at^{\frac{1}{2}})$	$\frac{a}{2s^2}-\frac{i\pi^{\frac{1}{2}}}{s^{\frac{3}{2}}}\left(\frac{s}{2}-\frac{a^2}{4}\right)e^{-\frac{a^2}{4s}}\mathrm{Erf}\left(\frac{ia}{2s^{\frac{1}{2}}}\right)$	Re s > o
	6	$\frac{1}{t^{\frac{1}{2}}}\sin(at^{\frac{1}{2}})$	$-\frac{i\pi^{\frac{1}{2}}}{s^{\frac{1}{2}}}e^{-\frac{a^2}{4s}}\mathrm{Erf}\left(\frac{ia}{2s^{\frac{1}{2}}}\right)$	Re s > o
	7	$\frac{1}{t^{\frac{3}{4}}}\sin(at^{\frac{1}{2}})$	$\pi\left(\frac{a}{2}\right)^{\frac{1}{2}}s^{-\frac{1}{2}}e^{-\frac{a^2}{8s}}I_{\frac{1}{4}}\left(\frac{a^2}{8s}\right)$	Re s > o
	8	$\frac{1}{t}\sin(at^{\frac{1}{2}})$	$\pi\,\mathrm{Erf}\left(\frac{a}{2s^{\frac{1}{2}}}\right)$	Re s > o
	9	$t^{\nu}\sin(at^{\frac{1}{2}})$	$-\frac{\pi^{\frac{1}{2}}\sec(\nu\pi)}{2^{\nu+\frac{3}{2}}s^{\nu+1}}e^{-\frac{a^2}{8s}}\left[D_{2\nu+1}\left(-\frac{a}{2^{\frac{1}{2}}s^{\frac{1}{2}}}\right)-D_{2\nu+1}\left(\frac{a}{2^{\frac{1}{2}}s^{\frac{1}{2}}}\right)\right]$	Re ν > $-\frac{3}{2}$ Re s > o
	10	$t^{\nu}\sin(\nu\pi-at^{\frac{1}{2}})$	$-\frac{\pi^{\frac{1}{2}}}{2^{\nu+\frac{3}{2}}s^{\nu+1}}e^{\frac{a^2}{8s}}D_{2\nu+1}\left(\frac{a}{2^{\frac{1}{2}}s^{\frac{1}{2}}}\right)$	Re ν > o Re s > o
	11	$\frac{1}{t^{\frac{1}{2}}}\sin\frac{a}{t}$	$\left(\frac{\pi}{s}\right)^{\frac{1}{2}}e^{-(2as)^{\frac{1}{2}}}\sin[(2as)^{\frac{1}{2}}]$	Re s > o
	12	$\frac{\sin[a(t^2+2bt)^{\frac{1}{2}}]}{(t+2b)^{\frac{1}{2}}}$	$\frac{a\pi^{\frac{1}{2}}e^{b[s-(s^2+a^2)^{\frac{1}{2}}]}}{2^{\frac{1}{2}}(s^2+a^2)^{\frac{1}{2}}[s+(s^2+a^2)^{\frac{1}{2}}]^{\frac{1}{2}}}$	Re s > |Im a
	13	$\frac{\sin(at^{\frac{1}{2}})\sin(bt^{\frac{1}{2}})}{t^{\frac{1}{2}}}$	$\left(\frac{\pi}{s}\right)^{\frac{1}{2}}e^{-\frac{a^2+b^2}{4s}}\sinh\left(\frac{ab}{2s}\right)=\frac{\pi(ab)^{\frac{1}{2}}}{2s}e^{-\frac{a^2+b^2}{4s}}I_{\frac{1}{2}}\left(\frac{ab}{2s}\right)$	Re s > o

		f(t)	g(s)	
5.2 (Contd.)	14	$\frac{1}{t^{\frac{1}{2}}}\cos(at)$	$\left(\frac{\pi}{2}\right)^{\frac{1}{2}}\frac{\left[s+(s^2+a^2)^{\frac{1}{2}}\right]^{\frac{1}{2}}}{(s^2+a^2)^{\frac{1}{2}}}$	Re s > |Im a|
	15	$t^{\nu}\cos(at)$	$\frac{1}{2}\Gamma(\nu+1)\left[(s-ia)^{-\nu-1}+(s+ia)^{-\nu-1}\right]$ $=\frac{\Gamma(\nu+1)\cos\left[(\nu+1)\tan^{-1}\frac{a}{s}\right]}{(s^2+a^2)^{\frac{\nu+1}{2}}}$	Re ν > − 1 Re s > |Im a|
	16	$\cos(at^{\frac{1}{2}})$	$\frac{1}{s}+\frac{i\pi^{\frac{1}{2}}a}{2s^{\frac{3}{2}}}e^{-\frac{a^2}{4s}}\mathrm{Erf}\left(\frac{ia}{2s^{\frac{1}{2}}}\right)$	Re s > o
	17	$t^{\frac{1}{2}}\cos(at^{\frac{1}{2}})$	$\frac{\pi^{\frac{1}{2}}}{s^{\frac{3}{2}}}\left(\frac{s}{2}-\frac{a^2}{4}\right)e^{-\frac{a^2}{4s}}$	Re s > o
	18	$\frac{1}{t^{\frac{1}{2}}}\cos(at^{\frac{1}{2}})$	$\left(\frac{\pi}{s}\right)^{\frac{1}{2}}e^{-\frac{a^2}{4s}}$	Re s > o
	19	$\frac{1}{t^{\frac{1}{4}}}\cos(at^{\frac{1}{2}})$	$\pi\left(\frac{a}{2}\right)^{\frac{1}{2}}s^{-\frac{1}{2}}e^{-\frac{a^2}{8s}}I_{-\frac{1}{4}}\left(\frac{a^2}{8s}\right)$	Re s > o
	20	$t^{n-\frac{1}{2}}\cos(at^{\frac{1}{2}})$	$\frac{\pi^{\frac{1}{2}}}{(-2)^n s^{n+\frac{1}{2}}}e^{-\frac{a^2}{4s}}He_{2n}\left(\frac{a}{2^{\frac{1}{2}}s^{\frac{1}{2}}}\right)$ $=\frac{\pi^{\frac{1}{2}}}{(-2)^n s^{n+\frac{1}{2}}}e^{-\frac{a^2}{8s}}D_{2n}\left(\frac{a}{2^{\frac{1}{2}}s^{\frac{1}{2}}}\right)$	n = 0,1,2,.... Re s > o
	21	$t^{\nu}\cos(at^{\frac{1}{2}})$	$-\frac{\pi^{\frac{1}{2}}\operatorname{cosec}(\nu\pi)}{2^{\nu+\frac{3}{2}}s^{\nu+1}}e^{-\frac{a^2}{8s}}\left[D_{2\nu+1}\left(\frac{a}{2^{\frac{1}{2}}s^{\frac{1}{2}}}\right)+D_{2\nu+1}\left(-\frac{a}{2^{\frac{1}{2}}s^{\frac{1}{2}}}\right)\right]$	Re ν > − 1 Re s > o
	22	$t^{\nu}\cos(2^{\frac{3}{2}}t^{\frac{1}{2}})$	$\frac{\Gamma(2\nu+2)}{(2s)^{\nu+1}}e^{-\frac{1}{4s}}\left[D_{-2\nu-2}\left(\frac{1}{s^{\frac{1}{2}}}\right)+D_{-2\nu-2}\left(\frac{-1}{s^{\frac{1}{2}}}\right)\right]$	Re ν > −1 Re s > o
	23	$\frac{1}{t^{\frac{1}{2}}}\cos\frac{a}{t}$	$\left(\frac{\pi}{s}\right)^{\frac{1}{2}}e^{-(2as)^{\frac{1}{2}}}\cos\left[(2as)^{\frac{1}{2}}\right]$	Re s > o

		f(t)	g(s)	
5.2 (Contd.)	24	$\frac{\cos\left[a(t^2+2bt)^{\frac{1}{2}}\right]}{(t+2b)^{\frac{1}{2}}}$	$\left(\frac{\pi}{2}\right)^{\frac{1}{2}}\frac{\left[s+(s^2+a^2)^{\frac{1}{2}}\right]^{\frac{1}{2}}}{(s^2+a^2)^{\frac{1}{2}}}e^{b\left[s-(s^2+a^2)^{\frac{1}{2}}\right]}$	Re s > |Im a|
	25	$\frac{\cos(at^{\frac{1}{2}})\cos(bt^{\frac{1}{2}})}{t^{\frac{1}{2}}}$	$\left(\frac{\pi}{s}\right)^{\frac{1}{2}}e^{-\frac{a^2+b^2}{4s}}\cosh\left(\frac{ab}{2s}\right)$ $=\frac{\pi}{2}\frac{(ab)^{\frac{1}{2}}}{s}e^{-\frac{a^2+b^2}{4s}}I_{-\frac{1}{2}}\left(\frac{ab}{2s}\right)$	Re s > o
	26	$\frac{1}{a}\sin(at^{\frac{1}{2}})-t^{\frac{1}{2}}\cos(at^{\frac{1}{2}})$	$\frac{\pi^{\frac{1}{2}}a^2}{4s^{\frac{5}{2}}}e^{-\frac{a^2}{4s}}$	Re s > o
	27	$\frac{1}{t^{\frac{1}{4}}}\sin(at^{\frac{1}{2}})-\frac{1}{at^{\frac{3}{4}}}\cos(at^{\frac{1}{2}})$	$\pi\left(\frac{a}{2s}\right)^{\frac{1}{2}}e^{-\frac{a^2}{8s}}I_{-\frac{1}{4}}\left(\frac{a^2}{8s}\right)$	Re s > o
	28	$\frac{1}{at^{\frac{3}{4}}}\sin(at^{\frac{1}{2}})-\frac{1}{t^{\frac{1}{4}}}\cos(at^{\frac{1}{2}})$	$\left(\frac{\pi}{2s}\right)^{\frac{1}{2}}e^{-\frac{a^2}{8s}}I_{\frac{1}{4}}\left(\frac{a^2}{8s}\right)$	Re s > o
5.2.1	1	$t^n\sin(at^{\frac{1}{2}})$	$\frac{(-1)^n\pi^{\frac{1}{2}}}{2^{n+\frac{1}{2}}s^{n+1}}e^{-\frac{a^2}{4s}}He_{2n+1}\left(\frac{a}{2^{\frac{1}{2}}s^{\frac{1}{2}}}\right)$ $=\frac{(-1)^n\pi^{\frac{1}{2}}}{2^{n+\frac{1}{2}}s^{n+1}}e^{-\frac{a^2}{8s}}D_{2n+1}\left(\frac{a}{2^{\frac{1}{2}}s^{\frac{1}{2}}}\right)$	n = 0,1,2,... Re s > o
	2	$\left(\frac{3}{8t}-1\right)\frac{\sin\left[(8t)^{\frac{1}{2}}\right]}{(2t^3)^{\frac{1}{4}}}-\frac{3\cos\left[(8t)^{\frac{1}{2}}\right]}{2t(8t)^{\frac{1}{4}}}$	$\frac{\pi}{s^{\frac{1}{2}}}e^{-\frac{1}{s}}I_{\frac{3}{4}}\left(\frac{1}{s}\right)$	Re s > o
	3	$\left(\frac{3}{8t}-1\right)\frac{\cos\left[(8t)^{\frac{1}{2}}\right]}{(2t^3)^{\frac{1}{4}}}+\frac{3\sin\left[(8t)^{\frac{1}{2}}\right]}{2t(8t)^{\frac{1}{4}}}$	$\frac{\pi}{s^{\frac{1}{2}}}e^{-\frac{1}{s}}I_{-\frac{3}{4}}\left(\frac{1}{s}\right)$	Re s > o
5.3	1	$e^{-at}\sin(bt)$	$\frac{b}{(s+a)^2+b^2}$	Re s > |Im b|−Re
	2	$\frac{e^{at}-1}{t}\sin(bt)$	$\cot^{-1}\frac{s^2-as+b}{ab}$	Re s > Max|Im b|, |Im b| +Re
	3	$(1-e^{-t})^{\nu}\sin(at)$	$\frac{1}{2}B(\nu+1,s+ia)-\frac{1}{2}B(\nu+1,s-ia)$	Re ν > − 2 Re s > |Im a|

		$f(t)$	$g(s)$	
5.3 (Contd.)	4	$\frac{\sin(at)}{e^t-1}$	$\frac{1}{2}\psi(s-ia+1)-\frac{1}{2}\psi(s+ia+1)$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert - 1$
	5	$\frac{\sin(at)}{1-e^{-t}}$	$\frac{1}{2}\psi(s-ia)-\frac{1}{2}\psi(s+ia)$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
	6	$\sin(a e^{-t})$	$\frac{\Gamma(s)}{a^s}[U_s(2a,o)\sin a - U_{s+1}(2a,o)\cos a]$	$\mathrm{Re}\, s > o$
	7	$\sin[a(1-e^{-t})]$	$\frac{\Gamma(s)}{a^s}U_{s+1}(2a,o)$	$\mathrm{Re}\, s > o$
	8	$\frac{\sin[a(1-e^{-t})^{\frac{1}{2}}]}{(e^t-1)^{\frac{1}{2}}}$	$\pi^{\frac{1}{2}}\Gamma(s+\frac{1}{2})(\frac{2}{a})^s H_s(a)$	$\mathrm{Re}\, s > -\frac{1}{2}$
	9	$\frac{\sin[a(e^t-1)^{\frac{1}{2}}]}{(1-e^{-t})^{\frac{1}{2}}}$	$\pi^{\frac{1}{2}}\Gamma(\frac{1}{2}-s)(\frac{a}{2})^s[I_s(a)-L_{-s}(a)]$	$a > o$ $\mathrm{Re}\, s > -\frac{1}{2}$
	10	$e^{-at}\cos(bt)$	$\frac{s+a}{(s+a)^2+b^2}$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, b\rvert - \mathrm{Re}\, a$
	11	$\frac{1}{t}\cos(ct)(e^{-bt}-e^{-at})$	$\frac{1}{2}\log\frac{(s+a)^2+c^2}{(s+b)^2+c^2}$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, c\rvert - \mathrm{Min}\ \mathrm{Re}\, a, \mathrm{Re}\, b$
	12	$(1-e^{-t})^\nu\cos(at)$	$\frac{1}{2}B(\nu+1,s-ia)+\frac{1}{2}B(\nu+1,s+ia)$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
	13	$\cos(a e^{-t})$	$\frac{\Gamma(s)}{a^s}[U_s(2a,o)\cos a + U_{s+1}(2a,o)\sin a]$	$\mathrm{Re}\, s > o$
	14	$\cos[a(1-e^{-t})]$	$\frac{\Gamma(s)}{a^s}U_s(2a,o)$	$\mathrm{Re}\, s > o$
	15	$\frac{\cos[a(1-e^{-t})^{\frac{1}{2}}]}{(e^t-1)^{\frac{1}{2}}}$	$\pi^{\frac{1}{2}}\Gamma(s+\frac{1}{2})(\frac{2}{a})^s J_s(a)$	$\mathrm{Re}\, s > -\frac{1}{2}$

		$f(t)$	$g(s)$	
5.3 (Contd.)	16	$\frac{\cos[a(e^t-1)^{\frac{1}{2}}]}{(1-e^{-t})^{\frac{1}{2}}}$	$\frac{2\pi^{\frac{1}{2}}(\frac{a}{2})^s}{\Gamma(s+\frac{1}{2})}K_s(a)$	$\mathrm{Re}\, s > -\frac{1}{2}$ $a > o$
	17	$e^{-at}[\cos(bt)+c\sin(bt)]$	$\frac{s+bc+a}{(s+a)^2+b^2}$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, b\rvert - \mathrm{Re}\, a$
5.3.2.1	1	$t^\nu e^{-at^2}\sin(bt)$	$\frac{i\Gamma(\nu+1)}{2(2a)^{\frac{\nu+1}{2}}}e^{\frac{s^2-b^2}{8a}}\left\{e^{\frac{ibs}{4a}}D_{-\nu-1}\left[\frac{s+ib}{(2a)^{\frac{1}{2}}}\right] - e^{-\frac{ibs}{4a}}D_{-\nu-1}\left[\frac{s-ib}{(2a)^{\frac{1}{2}}}\right]\right\}$	$\mathrm{Re}(s\pm ib) > \begin{cases} -\infty \text{ where } \lvert\arg a\rvert < \frac{\pi}{2} \\ o \text{ where } \arg a = \frac{\pi}{2}, \frac{3\pi}{2} \\ +\infty \text{ otherwise} \end{cases}$ $\mathrm{Re}\, a > o$ $\mathrm{Re}\,\nu > -2$
	2	$t^\nu e^{-at^2}\cos(bt)$	$\frac{i\Gamma(\nu+1)}{2(2a)^{\frac{\nu+1}{2}}}e^{\frac{s^2-b^2}{8a}}\left\{e^{\frac{ibs}{4a}}D_{-\nu-1}\left[\frac{s+ib}{(2a)^{\frac{1}{2}}}\right] + e^{-\frac{ibs}{4a}}D_{-\nu-1}\left[\frac{s-ib}{(2a)^{\frac{1}{2}}}\right]\right\}$	$\mathrm{Re}(s\pm ib) > \begin{cases} -\infty \text{ where } \lvert\arg a\rvert < \frac{\pi}{2} \\ o \text{ where } \arg a = \frac{\pi}{2}, \frac{3\pi}{2} \\ +\infty \text{ otherwise} \end{cases}$ $\mathrm{Re}\, a > o$ $\mathrm{Re}\,\nu > -1$
5.4	1	$\log t \sin(at)$	$\frac{s\tan^{-1}\frac{a}{s} - a\log[\gamma(s^2+a^2)^{\frac{1}{2}}]}{s^2+a^2}$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
	2	$\frac{1}{t}\log t\sin(at)$	$-\log[\gamma(s^2+a^2)^{\frac{1}{2}}]\tan^{-1}\frac{a}{s}$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
	3	$\log t\sin^2\frac{at}{2}$	$\frac{a s\tan^{-1}\frac{a}{s} + s^2\log(s^2+a^2)^{\frac{1}{2}} - (s^2+a^2)\log s - a^2\log\gamma}{s(s^2+a^2)}$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
	4	$\log(2\sin\frac{at}{2})$	$-s\sum_{k=1}^{\infty}\frac{1}{k(s^2+k^2a^2)}$	$a \neq o$ $\mathrm{Re}\, s > o$
	5	$\log t\cos(at)$	$-\frac{a\tan^{-1}\frac{a}{s} + s\log[\gamma(s^2+a^2)^{\frac{1}{2}}]}{s^2+a^2}$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
	6	$\log(2\cos\frac{at}{2})$	$s\sum_{k=1}^{\infty}\frac{(-1)^{k-1}}{k(s^2+k^2a^2)}$	$\mathrm{Re}\, s > o$

		$f(t)$	$g(s)$	
5.4 (Contd.)	7	$\log\cot\frac{at}{2}$	$2s\sum_{k=1}^{\infty}\frac{1}{(2k-1)[s^2+(2k-1)^2a^2]}$	$\mathrm{Re}\,s>0$
	8	$\cos(at)\cdot\frac{\sin(at)}{t}-\log\frac{t}{\gamma}\sin(at)$	$\frac{a}{2}\frac{\log(s^2+a^2)}{s^2+a^2}$	$\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$
5.4.2	1	$t^{\nu}\log t\sin(at)$	$\frac{\Gamma(\nu+1)}{(s^2+a^2)^{\frac{\nu+1}{2}}}\sin[(\nu+1)\tan^{-1}\frac{a}{s}]\Big\{\psi(\nu+1)-\frac{1}{2}\log(s^2+a^2)+\tan^{-1}\frac{a}{s}\cot[(\nu+1)\tan^{-1}\frac{a}{s}]\Big\}$	$\mathrm{Re}\,\nu>-2$ $\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$
	2	$t^{\nu}\log t\cos(at)$	$\frac{\Gamma(\nu+1)}{(s^2+a^2)^{\frac{\nu+1}{2}}}\cos[(\nu+1)\tan^{-1}\frac{a}{s}]\Big\{\psi(\nu+1)-\frac{1}{2}\log(s^2+a^2)-\tan^{-1}\frac{a}{s}\tan[(\nu+1)\tan^{-1}\frac{a}{s}]\Big\}$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$
6	1	$\tan^{-1}(at)$	$-\frac{1}{s}[\,\mathrm{ci}(\frac{s}{a})\sin(\frac{s}{a})+\mathrm{si}(\frac{s}{a})\cos(\frac{s}{a})]$	$\mathrm{Re}\,a>0$ $\mathrm{Re}\,s>0$
	2	$\cot^{-1}(at)$	$\frac{1}{s}[\frac{\pi}{2}+\mathrm{ci}(\frac{s}{a})\sin(\frac{s}{a})+\mathrm{si}(\frac{s}{a})\cos(\frac{s}{a})]$	$\mathrm{Re}\,s>0$
	3	$t\tan^{-1}(at)$	$\frac{1}{s^2}[-\mathrm{ci}(\frac{s}{a})\sin(\frac{s}{a})-\mathrm{si}(\frac{s}{a})\cos(\frac{s}{a})]+\frac{a}{s}[\,\mathrm{ci}(\frac{s}{a})\cos(\frac{s}{a})-\mathrm{si}(\frac{s}{a})\sin(\frac{s}{a})]$	$\mathrm{Re}\,s>0$
	4	$t\cot^{-1}(at)$	$\frac{1}{s^2}[\frac{\pi}{2}+\mathrm{ci}(\frac{s}{a})\sin(\frac{s}{a})+\mathrm{si}(\frac{s}{a})\cos(\frac{s}{a})]+\frac{a}{s}[\,\mathrm{si}(\frac{s}{a})\sin(\frac{s}{a})-\mathrm{ci}(\frac{s}{a})\cos(\frac{s}{a})]$	$\mathrm{Re}\,s>0$
6.3.2	1	$t^{2\nu}(1+t^2)^{\nu}e^{-2i\nu\cot^{-1}t}$	$\frac{i\pi^{\frac{1}{2}}}{2\Gamma(2\nu+1)}s^{-2\nu-\frac{1}{2}}e^{-\frac{is}{2}}H^{(1)}_{2\nu+\frac{1}{2}}(\frac{s}{2})$	$\mathrm{Re}\,\nu>-\frac{1}{2}$ $\mathrm{Re}\,s>0$
6.5.2	1	$t^{\nu}(t^2+a^2)^{\frac{\nu}{2}}\sin[\nu\cot^{-1}(\frac{t}{a})+b]$	$\frac{\pi^{\frac{1}{2}}a^{\nu+\frac{1}{2}}\Gamma(\nu+1)}{-2s^{\nu+\frac{1}{2}}}[\cos(\frac{as}{2}+b)J_{\nu+\frac{1}{2}}(\frac{as}{2})+\sin(\frac{as}{2}+b)Y_{\nu+\frac{1}{2}}(\frac{as}{2})]$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\,a>0$ $\mathrm{Re}\,s>0$
	2	$t^{\nu}(t^2+a^2)^{\frac{\nu}{2}}\cos[\nu\cot^{-1}(\frac{t}{a})+b]$	$\frac{\pi^{\frac{1}{2}}a^{\nu+\frac{1}{2}}\Gamma(\nu+1)}{2s^{\nu+\frac{1}{2}}}[\sin(\frac{as}{2}+b)J_{\nu+\frac{1}{2}}(\frac{as}{2})-\cos(\frac{as}{2}+b)Y_{\nu+\frac{1}{2}}(\frac{as}{2})]$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\,a>0$ $\mathrm{Re}\,s>0$

		$f(t)$	$g(s)$	
6.5.2.1	1	$\frac{\cos(\nu\cos^{-1}\frac{1}{1+t})}{[t(t+1)(t+2)]^{\frac{1}{2}}}$	$\pi^{\frac{1}{2}}e^{s}D_{\nu-\frac{1}{2}}(2^{\frac{1}{2}}s^{\frac{1}{2}})D_{-\nu-\frac{1}{2}}(2^{\frac{1}{2}}s^{\frac{1}{2}})$	$\mathrm{Re}\,s>0$
6.5.3	1	$\frac{\cos[\nu\cos^{-1}(e^{-t})]}{(1-e^{-2t})^{\frac{1}{2}}}$	$\frac{\pi}{2^{s}s\,B\left(\frac{s+\nu+1}{2},\frac{s-\nu+1}{2}\right)}$	$\mathrm{Re}\,s>0$
7	1	$\sinh(at)$	$\frac{a}{s^2-a^2}$	$\mathrm{Re}\,s>\lvert\mathrm{Re}\,a\rvert$
	2	$\frac{\sinh(at)}{t}$	$\frac{1}{2}\log\frac{s+a}{s-a}$ $=\coth^{-1}\frac{s}{a}$	$\mathrm{Re}\,s>\lvert\mathrm{Re}\,a\rvert$
	3	$\sinh^2(at)$	$\frac{2a^2}{s(s^2-4a^2)}$	$\mathrm{Re}\,s>2\lvert\mathrm{Re}\,a\rvert$
	4	$\sinh^{2n}(at)$	$\frac{(2n)!(a)^{2n}}{s[s^2-(2a)^2][s^2-2^2(2a)^2]\cdots[s^2-n^2(2a)^2]}$	$n=1,2,3,\ldots$ $\mathrm{Re}\,s>n\lvert\mathrm{Re}\,a\rvert$
	5	$\sinh^{2n+1}(at)$	$\frac{(2n+1)!a^{2n+1}}{[s^2-a^2][s^2-3^2a^2]\cdots[s^2-(2n+1)^2a^2]}$	$n=0,1,2,\ldots$ $\mathrm{Re}\,s>(2n+1)\lvert\mathrm{Re}\,a\rvert$
	6	$\sinh^{\nu}(at)$	$\frac{B\left(\frac{s}{2a}-\frac{\nu}{2},\nu+1\right)}{2^{\nu+1}a}$	$\mathrm{Re}\,a>0$ $\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\,s>\mathrm{Re}(a\nu)$
	7	$a\sinh(at)-b\sinh(bt)$	$\frac{(a^2-b^2)s^2}{(s^2-a^2)(s^2-b^2)}$	$\mathrm{Re}\,s>\mathrm{Max}\lvert\mathrm{Re}\,a\rvert,\lvert\mathrm{Re}\,b\rvert$
	8	$b\sinh(at)-a\sinh(bt)$	$\frac{ab(a^2-b^2)}{(s^2-a^2)(s^2-b^2)}$	$\mathrm{Re}\,s>\mathrm{Max}\lvert\mathrm{Re}\,a\rvert,\lvert\mathrm{Re}\,b\rvert$
	9	$\frac{1}{t}-\mathrm{cosech}\,t$	$\psi(\frac{s+1}{2})-\log\frac{s}{2}$	$\mathrm{Re}\,s>0$
	10	$\cosh(at)$	$\frac{s}{s^2-a^2}$	$\mathrm{Re}\,s>\lvert\mathrm{Re}\,a\rvert$

		$f(t)$	$g(s)$	
7 (Contd.)	11	$\frac{1-\cosh(at)}{t}$	$\frac{1}{2}\log\frac{s^2-a^2}{s^2}$	Re s > |Re a|
	12	$\cosh^2(at)$	$\frac{s^2-2a^2}{s(s^2-4a^2)}$	Re s > 2|Re a|
	13	$[\cosh(at)-1]^\nu$	$\frac{B(\frac{s}{a}-\nu,2\nu+1)}{2^\nu a}$	Re a > o Re ν > − ½ Re s > Re(aν)
	14	$\cosh(at)-\cosh(bt)$	$\frac{(a^2-b^2)s}{(s^2-a^2)(s^2-b^2)}$	Re s > Max|Re a|,|Re b|
	15	$a^2\cosh(at)-b^2\cosh(bt)$	$\frac{(a^2-b^2)s^3}{(s^2-a^2)(s^2-b^2)}$	Re s > Max|Re a|,|Re b|
	16	$\mathrm{sech}(at)$	$\frac{1}{2a}\psi(\frac{s+3a}{4a})-\frac{1}{2a}\psi(\frac{s+a}{4a})$	Re s > Max − Re a, − Re 3a
	17	$\frac{1-\mathrm{sech}\,t}{t}$	$2\log\frac{\Gamma(\frac{s+3}{4})}{\Gamma(\frac{s+1}{4})}-\log\frac{s}{4}$	Re s > o
	18	$\mathrm{sech}^2 t$	$\frac{s}{2}[\psi(\frac{s+2}{4})-\psi(\frac{s}{4})]-1$	Re s > o
	19	$at\cosh(at)-\sinh(at)$	$\frac{2a^3}{(s^2-a^2)^2}$	Re s > |Re a|
	20	$\tanh t$	$\frac{1}{2}[\psi(\frac{s+2}{4})-\psi(\frac{s}{4})]-\frac{1}{s}$	Re s > o
	21	$\frac{\tanh t}{t}$	$\log\frac{s}{4}+2\log\frac{\Gamma(\frac{s}{4})}{\Gamma(\frac{s+2}{4})}$	Re s > o
	22	$\frac{1}{t}-\coth t$	$\psi(\frac{s}{2})+\frac{1}{s}-\log\frac{s}{2}$	Re s > o

		$f(t)$	$g(s)$	
7 (Contd.)	23	$\int_0^{at}\frac{\sinh u}{u}\,du$	$\frac{\tanh^{-1}\frac{s}{a}}{s}$ $=\frac{\log\frac{s+a}{s-a}}{2s}$	Re s > |Re a|
7.1	1	$[\sinh\frac{t}{2}\sinh(a+\frac{t}{2})]^\mu$	$\frac{\Gamma(\mu+1)e^{(\mu+\frac{1}{2})\pi i}\sinh^{\mu+\frac{1}{2}}a}{2^{\mu-\frac{1}{2}}}e^{as}Q^{-\mu-\frac{1}{2}}_{s-\frac{1}{2}}(\cosh a)$	Re μ > − 1 |arg a| < π Re s > Re μ
	2	$at^2\cosh(at)-t\sinh(at)$	$\frac{8a^3s}{(s^2-a^2)^3}$	Re s > |Re a|
	3	$at\cosh(at)-(1-a^2t^2)\sinh(at)$	$\frac{8a^3s^2}{(s^2-a^2)^3}$	Re s > |Re a|
	4	$(3+a^2t^2)\sinh(at)-3at\cosh(at)$	$\frac{8a^5}{(s^2-a^2)^3}$	Re s > |Re a|
	5	$\frac{\cosh(at)-1}{t^2}-\frac{a\sinh(at)}{t}$	$\frac{s}{2}\log\frac{s^2-a^2}{s^2}$	Re s > |Re a|
7.2	1	$\frac{1}{t^{\frac{1}{2}}}\sinh(at)$	$(\frac{\pi}{2})^{\frac{1}{2}}\left[\frac{s-(s^2-a^2)^{\frac{1}{2}}}{s^2-a^2}\right]^{\frac{1}{2}}$	Re s > |Re a|
	2	$t^\nu\sinh(at)$	$\frac{\Gamma(\nu+1)}{2}[(s-a)^{-\nu-1}-(s+a)^{-\nu-1}]$	Re ν > − 1 Re s > |Re a|
	3	$\sinh(at^{\frac{1}{2}})$	$\frac{\pi^{\frac{1}{2}}a}{2s^{\frac{3}{2}}}e^{\frac{a^2}{4s}}$	Re s > o
	4	$t^{\frac{1}{2}}\sinh(at^{\frac{1}{2}})$	$\pi^{\frac{1}{2}}s^{-\frac{5}{2}}(\frac{s}{2}+\frac{a^2}{4})e^{\frac{a^2}{4s^2}}\mathrm{Erf}(\frac{a}{2s^{\frac{1}{2}}})-\frac{a}{2s^2}$	Re s > o
	5	$\frac{1}{t^{\frac{1}{2}}}\sinh(at^{\frac{1}{2}})$	$(\frac{\pi}{s})^{\frac{1}{2}}e^{\frac{a^2}{4s}}\mathrm{Erf}(\frac{a}{2s^{\frac{1}{2}}})$	Re s > o
	6	$\frac{1}{t^{\frac{1}{4}}}\sinh(at^{\frac{1}{2}})$	$\pi(\frac{a}{2s})^{\frac{1}{2}}e^{\frac{a^2}{8s}}I_{\frac{1}{4}}(\frac{a^2}{8s})$	Re s > o

		$f(t)$	$g(s)$	
7.2 (Contd.)	7	$t^{\nu}\sinh(at^{\frac{1}{2}})$	$\frac{\Gamma(2\nu+2)}{(2s)^{\nu+1}}\, e^{\frac{a^2}{8s}}\left[D_{-2\nu-2}\left(-\frac{a}{2^{\frac{1}{2}}s^{\frac{1}{2}}}\right)-D_{-2\nu-2}\left(\frac{a}{2^{\frac{1}{2}}s^{\frac{1}{2}}}\right)\right]$	Re $\nu > -\frac{3}{2}$ Re $s > 0$
	8	$\frac{1}{t^{\frac{1}{2}}}\sinh^2(at^{\frac{1}{2}})$	$\frac{\pi^{\frac{1}{2}}}{2s^{\frac{1}{2}}}(e^{\frac{a^2}{s}}-1)$	Re $s > 0$
	9	$\frac{\sinh[a(t^2+bt)^{\frac{1}{2}}]}{(t+b)^{\frac{1}{2}}}$	$(\frac{\pi}{2})^{\frac{1}{2}}\, e^{\frac{b}{2}[s-(s^2-a^2)^{\frac{1}{2}}]}\left[\frac{s-(s^2-a^2)^{\frac{1}{2}}}{s^2-a^2}\right]^{\frac{1}{2}}$	Re $s > \lvert$Re $a\rvert$
	10	$t^{\nu}\,\mathrm{cosech}\, t$	$2^{-\nu}\Gamma(\nu+1)\zeta(\nu+1,\, \frac{s+1}{2})$	Re $\nu > 0$ Re $s > -1$
	11	$\frac{1}{t^{\frac{1}{2}}}\cosh(at)$	$(\frac{\pi}{2})^{\frac{1}{2}}\left[\frac{s+(s^2-a^2)^{\frac{1}{2}}}{s^2-a^2}\right]^{\frac{1}{2}}$	Re $s > \lvert$Re $a\rvert$
	12	$t^{\nu}\cosh(at)$	$\frac{\Gamma(\nu+1)}{2}[(s-a)^{-\nu-1}+(s+a)^{-\nu-1}]$	Re $\nu > -1$ Re $s > \lvert$Re $a\rvert$
	13	$\cosh(at^{\frac{1}{2}})$	$\frac{\pi^{\frac{1}{2}}a}{2s^{\frac{3}{2}}}\, e^{\frac{a^2}{4s}}\,\mathrm{Erf}\left(\frac{a}{2s^{\frac{1}{2}}}\right)+\frac{1}{s}$	Re $s > 0$
	14	$t^{\frac{1}{2}}\cosh(at^{\frac{1}{2}})$	$\pi^{\frac{1}{2}}s^{-\frac{5}{2}}(\frac{s}{2}+\frac{a^2}{4})\, e^{\frac{a^2}{4s}}$	Re $s > 0$
	15	$\frac{1}{t^{\frac{1}{2}}}\cosh(at^{\frac{1}{2}})$	$(\frac{\pi}{s})^{\frac{1}{2}}\, e^{\frac{a^2}{4s}}$	Re $s > 0$
	16	$\frac{1}{t^{\frac{3}{4}}}\cosh(at^{\frac{1}{2}})$	$\pi(\frac{a}{2s})^{\frac{1}{2}}\, e^{\frac{a^2}{8s}}\, I_{-\frac{1}{4}}(\frac{a^2}{8s})$	Re $s > 0$
	17	$t^{\nu}\cosh(at^{\frac{1}{2}})$	$\frac{\Gamma(2\nu+2)}{(2s)^{\nu+1}}\, e^{\frac{a^2}{8s}}\left[D_{-2\nu-2}\left(-\frac{a}{2^{\frac{1}{2}}s^{\frac{1}{2}}}\right)+D_{-2\nu-2}\left(\frac{a}{2^{\frac{1}{2}}s^{\frac{1}{2}}}\right)\right]$	Re $\nu > -1$ Re $s > 0$
	18	$\frac{1}{t^{\frac{1}{2}}}\cosh^2(at^{\frac{1}{2}})$	$\frac{\pi^{\frac{1}{2}}}{2s^{\frac{1}{2}}}(e^{\frac{a^2}{s}}+1)$	Re $s > 0$
	19	$\frac{\cosh[a(t^2+bt)^{\frac{1}{2}}]}{(t+b)^{\frac{1}{2}}}$	$(\frac{\pi}{2})^{\frac{1}{2}}\, e^{\frac{b}{2}[s-(s^2-a^2)^{\frac{1}{2}}]}\left[\frac{(s^2-a^2)^{\frac{1}{2}}+s}{s^2-a^2}\right]^{\frac{1}{2}}$	Re $s > \lvert$Re $a\rvert$

		$f(t)$	$g(s)$	
7.2 (Contd.)	20	$t^{\nu}\coth t$	$\Gamma(\nu+1)[2^{-\nu}\zeta(\nu+1,\, \frac{s}{2})-s^{-\nu-1}]$	Re $\nu > 0$ Re $s > 0$
	21	$t^{\nu}(\coth t-1)$	$2^{-\nu}\Gamma(\nu+1)\zeta(\nu+1,\, \frac{s}{2}+1)$	Re $\nu > 0$ Re $s > -2$
	22	$\frac{1}{t^{\frac{3}{4}}}\sinh(at^{\frac{1}{2}})-\frac{1}{at^{\frac{5}{4}}}\cosh(at^{\frac{1}{2}})$	$\pi(\frac{a}{2s})^{\frac{1}{2}}e^{\frac{a^2}{8s}}\, I_{-\frac{3}{4}}(\frac{a^2}{8s})$	Re $s > 0$
	23	$\frac{1}{t^{\frac{3}{4}}}\cosh(at^{\frac{1}{2}})-\frac{1}{at^{\frac{5}{4}}}\sinh(at^{\frac{1}{2}})$	$\pi(\frac{a}{2s})^{\frac{1}{2}}\, e^{\frac{a^2}{8s}}\, I_{\frac{3}{4}}(\frac{a^2}{8s})$	Re $s > 0$
	24	$t^{\frac{1}{2}}\cosh(at^{\frac{1}{2}})-\frac{1}{a}\sinh(at^{\frac{1}{2}})$	$\frac{a^2\pi^{\frac{1}{2}}\, e^{\frac{a^2}{4s}}}{4s^{\frac{5}{2}}}$	Re $s > 0$
7.2.1	1	$t^{\frac{1}{2}}\sinh(at^{\frac{1}{2}})-\frac{1}{a}\cosh(at^{\frac{1}{2}})-(\frac{at}{2}-\frac{1}{a})$	$\frac{a^2\pi^{\frac{1}{2}}}{4s^{\frac{5}{2}}}\, e^{\frac{a^2}{4s}}\,\mathrm{Erf}(\frac{a}{2s^{\frac{1}{2}}})$	Re $s > 0$
	2	$(\frac{3}{t}+1)\frac{\sinh(t^{\frac{1}{2}})}{t^{\frac{3}{2}}}-\frac{3\cosh(t^{\frac{1}{2}})}{t^{\frac{3}{2}}}$	$\frac{\pi\, e^{\frac{1}{8s}}\, I_{\frac{3}{4}}(\frac{1}{8s})}{(2s)^{\frac{1}{2}}}$	Re $s > 0$
	3	$(\frac{3}{t}+1)\frac{\cosh(t^{\frac{1}{2}})}{t^{\frac{3}{2}}}-\frac{3\sinh(t^{\frac{1}{2}})}{t^{\frac{3}{2}}}$	$\frac{\pi\, e^{\frac{1}{8s}}\, I_{-\frac{3}{4}}(\frac{1}{8s})}{(2s)^{\frac{1}{2}}}$	Re $s > 0$
7.3	1	$e^{-a\sinh t}$	$\pi\,\mathrm{cosec}(\pi s)[\, \mathbf{J}_s(a)-J_s(a)]$	Re $a > 0$ Re $s > -\infty$
	2	$\frac{\sinh[a(1-e^{-t})^{\frac{1}{2}}]}{(e^{t}-1)^{\frac{1}{2}}}$	$\pi^{\frac{1}{2}}\Gamma(s+\frac{1}{2})(\frac{2}{a})^{s}\, L_s(a)$	Re $s > -\frac{1}{2}$
	3	$e^{-a\cosh t}$	$\mathrm{cosec}(s\pi)\left[\int_0^{\pi} e^{a\cos\theta}\cos(s\theta)d\theta-\pi\, I_s(a)\right]$	Re $a > 0$ Re $s > -\infty$
	4	$\frac{\cosh[a(1-e^{-t})^{\frac{1}{2}}]}{(e^{t}-1)^{\frac{1}{2}}}$	$\pi^{\frac{1}{2}}\Gamma(s+\frac{1}{2})(\frac{2}{a})^{s}\, I_s(a)$	Re $s > -\frac{1}{2}$

		f(t)	g(s)	
7.3 (Contd.)	5	$\frac{1}{t}e^{-at}[1-\operatorname{sech}\frac{t}{4}]$	$\log\left[\frac{1}{s+a}\left(\frac{\Gamma(s+a+\frac{3}{4})}{\Gamma(s+a+\frac{1}{4})}\right)^{s}\right]$	$\operatorname{Re} s > -\operatorname{Re} a$
	6	$\frac{1}{t}e^{-at}\tanh\frac{t}{4}$	$\log\left[(s+a)\left(\frac{\Gamma(s+a)}{\Gamma(s+a+\frac{1}{2})}\right)^{2}\right]$	$\operatorname{Re} s > -\operatorname{Re} a$
	7	$\frac{e^{t}(t-2e^{\frac{t}{2}}\cosh\frac{t}{2})}{t(\cosh t+1)}$	$2\log\frac{\Gamma(\frac{s}{2})}{\Gamma(\frac{s-1}{2})}-\psi(\frac{s}{2})$	$\operatorname{Re} s > 1$
	8	$\tanh[\frac{\pi}{2}(e^{2t}-1)^{\frac{1}{2}}]$	$\frac{\zeta(s-1)}{2^{s}}$	$\operatorname{Re} s > 0$
	9	$\sinh^{2b}\frac{t}{2}\,e^{-2a\coth\frac{t}{2}}$	$\frac{1}{2}a^{\frac{b-1}{2}}\Gamma(s-b)[W_{-s+\frac{1}{2},b}(4a)-(s-b)W_{-s-\frac{1}{2},b}(4a)]$	$\operatorname{Re} a > 0$ $\operatorname{Re} s > \operatorname{Re} b$
	10	$e^{-bt}[\cosh(ct)+a\sinh(ct)]$	$\frac{s+ac+b}{(s+b)^{2}-c^{2}}$	$\operatorname{Re} s > \operatorname{Max} -\operatorname{Re}(c+b), -\operatorname{Re}(b-c)$
7.3.1	1	$e^{-a\sinh(t+ib)}$	$\operatorname{cosec}(s\pi)\left[\int_{0}^{\pi}e^{ia\sin b\cos\theta}\cos(s\theta-a\cos b\sin\theta)\,d\theta-\pi e^{ibs}J_{s}(a)\right]$	$-\frac{\pi}{2}<b<\frac{\pi}{2}$ $\lvert\arg a\rvert<\frac{\pi}{2}-b$ $\operatorname{Re} s > -\infty$
	2	$\frac{t-e^{t}+1}{2t\sinh t}$	$\log\frac{\Gamma(\frac{s+1}{2})}{\Gamma(\frac{s}{2})}-\frac{1}{2}\psi(\frac{s+1}{2})$	$\operatorname{Re} s > 0$
	3	$\frac{t-e^{t}+1}{2t\sinh t}+e^{t}$	$\log\frac{\Gamma(\frac{s+1}{2})}{\Gamma(\frac{s}{2})}-\frac{1}{2}\psi(\frac{s-1}{2})$	$\operatorname{Re} s > 1$
7.4	1	$\log\sinh t-\log t$	$s^{-1}[\log\frac{s}{2}-\frac{1}{2s}-\psi(\frac{s}{2})]$	$\operatorname{Re} s > 0$
	2	$\log\frac{2\sinh\frac{t}{2}}{t}$	$\frac{1}{s}\frac{d}{ds}[\log\Gamma(s)-(s-\frac{1}{2})\log s+s-\log(2\pi)^{\frac{1}{2}}]$	$\operatorname{Re} s > 0$
	3	$\log(\frac{t}{\gamma})\sinh(at)$	$\frac{a\tanh^{-1}\frac{a}{s}-\frac{a}{2}\log(s^{2}-a^{2})}{s^{2}-a^{2}}$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$

		f(t)	g(s)	
7.4 (Contd.)	4	$\log\cosh t$	$\frac{1}{2s}[\psi(\frac{s+2}{4})-\psi(\frac{s}{4})]-\frac{1}{s^{2}}$	$\operatorname{Re} s > 0$
	5	$\log(\frac{\gamma}{t})\cosh(at)$	$\frac{\frac{s}{2}\log(s^{2}-a^{2})-a\tanh^{-1}\frac{a}{s}}{s^{2}-a^{2}}$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$
	6	$\log(\frac{\gamma}{t})\sinh(at)+\cosh(at)*\frac{\sinh(at)}{t}$	$\frac{a\log(s^{2}-a^{2})}{2(s^{2}-a^{2})}$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$
	7	$\log(\frac{\gamma}{t})\cosh(at)+\sinh(at)*\frac{\sinh(at)}{t}$	$\frac{s\log(s^{2}-a^{2})}{2(s^{2}-a^{2})}$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$
7.5	1	$\sinh(at)+\sin(at)$	$\frac{2as^{2}}{s^{4}-a^{4}}$	$\operatorname{Re} s > \operatorname{Max}\lvert\operatorname{Re} a\rvert, \lvert\operatorname{Im} a$
	2	$\sinh(at)-\sin(at)$	$\frac{2a^{3}}{s^{4}-a^{4}}$	$\operatorname{Re} s > \operatorname{Max}\lvert\operatorname{Re} a\rvert, \lvert\operatorname{Im} a$
	3	$\sin(at)\sinh(at)$	$\frac{2a^{2}s}{s^{4}+4a^{4}}$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert+\lvert\operatorname{Im} a\rvert$
	4	$\cos(at)\sinh(at)$	$\frac{a(s^{2}-2a^{2})}{s^{4}+4a^{4}}$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert+\lvert\operatorname{Im} a\rvert$
	5	$\frac{\cos(bt)\sinh(at)}{t}$	$\frac{1}{4}\log\frac{s^{2}+2as+(a^{2}+b^{2})}{s^{2}-2as+(a^{2}+b^{2})}$	$\operatorname{Re} s > \lvert\operatorname{Im} b\rvert+\lvert\operatorname{Re} a\rvert$
	6	$\sin(at)\cosh(at)$	$\frac{a(s^{2}+2a^{2})}{s^{4}+4a^{4}}$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert+\lvert\operatorname{Im} a\rvert$
	7	$\frac{\sin(bt)\cosh(at)}{t}$	$\frac{1}{2}\tan^{-1}\frac{2bs}{s^{2}-(a^{2}+b^{2})}$	$\operatorname{Re} s > \lvert\operatorname{Im} b\rvert+\lvert\operatorname{Re} a\rvert$
	8	$\cosh(at)+\cos(at)$	$\frac{2s^{3}}{s^{4}-a^{4}}$	$\operatorname{Re} s > \operatorname{Max}\lvert\operatorname{Re} a\rvert, \lvert\operatorname{Im} a\rvert$
	9	$\cosh(at)-\cos(at)$	$\frac{2a^{2}s}{s^{4}-a^{4}}$	$\operatorname{Re} s > \operatorname{Max}\lvert\operatorname{Re} a\rvert, \lvert\operatorname{Im} a\rvert$
	10	$\cos(at)\cosh(at)$	$\frac{s^{3}}{s^{4}+4a^{4}}$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert+\lvert\operatorname{Im} a\rvert$

		f(t)	g(s)	
7.5 (Contd.)	11	$\cosh(at)\sin(at)+\sinh(at)\cos(at)$	$\frac{2as^2}{s^4+4a^4}$	$\mathrm{Re}\, s > \lvert \mathrm{Re}\, a\rvert + \lvert \mathrm{Im}\, a\rvert$
	12	$\cosh(at)\sin(at)-\sinh(at)\cos(at)$	$\frac{4a^3}{s^4+4a^4}$	$\mathrm{Re}\, s > \lvert \mathrm{Re}\, a\rvert + \lvert \mathrm{Im}\, a\rvert$
7.5.2	1	$\frac{1}{t^{\frac{1}{2}}}\sinh(at^{\frac{1}{2}})\sin(at^{\frac{1}{2}})$	$\frac{\pi^{\frac{1}{2}}\sin\frac{a^2}{2s}}{s^{\frac{1}{2}}}$	$\mathrm{Re}\, s > o$
	2	$\sinh(at^{\frac{1}{2}})+\sin(at^{\frac{1}{2}})$	$\frac{a\pi^{\frac{1}{2}}}{s^{\frac{3}{2}}}\cosh\frac{a^2}{4s}$	$\mathrm{Re}\, s > o$
	3	$\sinh(at^{\frac{1}{2}})-\sin(at^{\frac{1}{2}})$	$\frac{a\pi^{\frac{1}{2}}}{s^{\frac{3}{2}}}\sinh\frac{a^2}{4s}$	$\mathrm{Re}\, s > o$
	4	$\frac{\sinh(t^{\frac{1}{2}})+\sin(t^{\frac{1}{2}})}{t^{\frac{3}{2}}}$	$(\frac{2}{s})^{\frac{1}{2}}\pi\cosh\frac{1}{8s}I_{\frac{1}{4}}(\frac{1}{8s})$	$\mathrm{Re}\, s > o$
	5	$\frac{\sinh(t^{\frac{1}{2}})-\sin(t^{\frac{1}{2}})}{t^{\frac{3}{2}}}$	$(\frac{2}{s})^{\frac{1}{2}}\pi\sinh\frac{1}{8s}I_{\frac{1}{4}}(\frac{1}{8s})$	$\mathrm{Re}\, s > o$
	6	$\sinh(at^{\frac{1}{2}})\cos(at^{\frac{1}{2}})$	$\frac{\pi^{\frac{1}{2}}a}{2^{\frac{1}{2}}s^{\frac{3}{2}}}\cos\frac{a^2}{2s}$	$\mathrm{Re}\, s > o$
	7	$\frac{1}{t^{\frac{1}{2}}}\cosh(at^{\frac{1}{2}})\cos(at^{\frac{1}{2}})$	$\frac{\pi^{\frac{1}{2}}}{s^{\frac{1}{2}}}\cos\frac{a^2}{2s}$	$\mathrm{Re}\, s > o$
	8	$\frac{1}{t^{\frac{1}{2}}}[\cosh(at^{\frac{1}{2}})+\cos(at^{\frac{1}{2}})]$	$\frac{2\pi^{\frac{1}{2}}}{s^{\frac{1}{2}}}\cosh\frac{a^2}{4s}$	$\mathrm{Re}\, s > o$
	9	$\frac{1}{t^{\frac{1}{2}}}[\cosh(at^{\frac{1}{2}})-\cos(at^{\frac{1}{2}})]$	$\frac{2\pi^{\frac{1}{2}}}{s^{\frac{1}{2}}}\sinh\frac{a^2}{4s}$	$\mathrm{Re}\, s > o$
	10	$\frac{\cosh(t^{\frac{1}{2}})+\cos(t^{\frac{1}{2}})}{t^{\frac{1}{2}}}$	$(\frac{2}{s})^{\frac{1}{2}}\pi\cosh\frac{1}{8s}I_{-\frac{1}{4}}(\frac{1}{8s})$	$\mathrm{Re}\, s > o$
	11	$\frac{\cosh(t^{\frac{1}{2}})-\cos(t^{\frac{1}{2}})}{t^{\frac{3}{2}}}$	$(\frac{2}{s})^{\frac{1}{2}}\pi\sinh\frac{1}{8s}I_{-\frac{1}{4}}(\frac{1}{8s})$	$\mathrm{Re}\, s > o$

		f(t)	g(s)	
7.5.2 (Contd.)	12	$\cosh(at^{\frac{1}{2}})\sin(at^{\frac{1}{2}})$	$\frac{\pi^{\frac{1}{2}}a}{2^{\frac{1}{2}}s^{\frac{3}{2}}}\sin\frac{a^2}{2s}$	$\mathrm{Re}\, s > o$
	13	$t^{\frac{1}{2}}[\cosh(at^{\frac{1}{2}})+\cos(at^{\frac{1}{2}})]-\frac{1}{a}[\sinh(at^{\frac{1}{2}})+\sin(at^{\frac{1}{2}})]$	$\frac{a^2\pi^{\frac{1}{2}}}{2s^{\frac{5}{2}}}\sinh\frac{a^2}{4s}$	$\mathrm{Re}\, s > o$
	14	$t^{\frac{1}{2}}[\cosh(at^{\frac{1}{2}})-\cos(at^{\frac{1}{2}})]-\frac{1}{a}[\sinh(at^{\frac{1}{2}})-\sin(at^{\frac{1}{2}})]$	$\frac{a^2\pi^{\frac{1}{2}}}{2s^{\frac{5}{2}}}\cosh\frac{a^2}{4s}$	$\mathrm{Re}\, s > o$
	15	$\frac{\sinh a}{t^{\frac{1}{2}}[\cosh a-\cos(t^{\frac{1}{2}})]}$	$2\pi e^{a^2 s}[\theta_3(2as\mid 4s)+\hat{\theta}_3(2as\mid 4s)] -(\frac{\pi}{s})^{\frac{1}{2}}$	$\mathrm{Re}\, s > o$
8	1	$\sinh^{-1}(at)$	$\frac{\pi}{2}s^{-1}[H_0(\frac{s}{a})-Y_0(\frac{s}{a})]$	$\mathrm{Re}\, s > o$
	2	$t\sinh^{-1}t$	$\frac{\pi}{2s^2}[H_0(s)-Y_0(s)+sH_1(s)-sY_1(s)]-\frac{1}{s}$	$\mathrm{Re}\, s > o$
8.1	1	$\cosh^{-1}(1+at)$	$\frac{1}{s}e^{\frac{s}{a}}K_0(\frac{s}{a})$	$\lvert\arg a\rvert < \pi$ $\mathrm{Re}\, s > o$
8.2	1	$(1+t^2)^{\frac{1}{2}}-t\sinh^{-1}t$	$\frac{S_{2,0}(s)}{s^2}$	$\mathrm{Re}\, s > o$
	2	$\sinh^{-1}[(\frac{t}{a})^{\frac{1}{2}}]$	$s^{-1}e^{as}K_0(as)$	$\lvert\arg a\rvert < \pi$ $\mathrm{Re}\, s > o$
8.3.2	1	$\frac{e^{n\sinh^{-1}t}}{(1+t^2)^{\frac{1}{2}}}$	$\frac{1}{2}[S_n(s)-\pi E_n(s)-\pi Y_n(s)]$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s > o$
	2	$\frac{e^{-n\sinh^{-1}t}}{(1+t^2)^{\frac{1}{2}}}$	$\frac{1}{2}(-1)^{n+1}[S_n(s)+\pi E_n(s)+\pi Y_n(s)]$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s > o$
	3	$\frac{e^{-\nu\sinh^{-1}t}}{(1+t^2)^{\frac{1}{2}}}$	$\frac{\pi}{\sin(\nu\pi)}[J_\nu(s)-J_\nu(s)]$	$\mathrm{Re}\, s > o$
	4	$\frac{e^{\nu\sinh^{-1}\frac{t}{a}}}{t^{\frac{1}{2}}(t^2+a^2)^{\frac{1}{2}}}$	$(\frac{\pi}{2})^{\frac{1}{2}}s^{\frac{1}{2}}[J_{\frac{\nu}{2}+\frac{1}{4}}(\frac{as}{2})J_{\frac{\nu}{2}-\frac{1}{4}}(\frac{as}{2})+Y_{\frac{\nu}{2}+\frac{1}{4}}(\frac{as}{2})Y_{\frac{\nu}{2}-\frac{1}{4}}(\frac{as}{2})]$	$\mathrm{Re}\, a > o$ $\mathrm{Re}\, s > o$

		$f(t)$	$g(s)$	
8.3.2 (Contd.)	5	$\frac{e^{-\nu \sinh^{-1}\frac{t}{a}}}{t^{\frac{1}{2}}(t^2+a^2)^{\frac{1}{2}}}$	$(\frac{\pi}{2})^{\frac{3}{2}} s^{\frac{1}{2}}[J_{\frac{\nu}{2}+\frac{1}{4}}(\frac{as}{2})Y_{\frac{\nu}{2}-\frac{1}{4}}(\frac{as}{2}) - J_{\frac{\nu}{2}-\frac{1}{4}}(\frac{as}{2})Y_{\frac{\nu}{2}+\frac{1}{4}}(\frac{as}{2})]$	Re a > o Re s > o
	6	$\frac{\sin[(\nu+\frac{1}{4})\pi]e^{-2\nu \sinh^{-1}\frac{t}{a}} - \cos[(\nu+\frac{1}{4})\pi]e^{2\nu \sinh^{-1}\frac{t}{a}}}{t^{\frac{1}{2}}(t^2+a^2)^{\frac{1}{2}}}$	$(\frac{\pi}{2})^{\frac{3}{2}} s^{\frac{1}{2}}[J_{\frac{1}{4}+\nu}(\frac{as}{2})Y_{\frac{1}{4}-\nu}(\frac{as}{2}) - J_{\frac{1}{4}-\nu}(\frac{as}{2})Y_{\frac{1}{4}+\nu}(\frac{as}{2})]$	Re a > o Re s > o
	7	$\frac{\cos[(\nu+\frac{1}{4})\pi]e^{-2\nu \sinh^{-1}\frac{t}{a}} + \sin[(\nu+\frac{1}{4})\pi]e^{2\nu \sinh^{-1}\frac{t}{a}}}{t^{\frac{1}{2}}(t^2+a^2)^{\frac{1}{2}}}$	$(\frac{\pi}{2})^{\frac{3}{2}} s^{\frac{1}{2}}[J_{\frac{1}{4}+\nu}(\frac{as}{2})J_{\frac{1}{4}-\nu}(\frac{as}{2}) + Y_{\frac{1}{4}+\nu}(\frac{as}{2})Y_{\frac{1}{4}-\nu}(\frac{as}{2})]$	Re a > o Re s > o
8.7	1	$\sinh[(2n+1)\sinh^{-1}t]$	$O_{2n+1}(s)$	n = 0,1,2,... Re s > o
	2	$\sinh(\nu \sinh^{-1} at)$	$\frac{\nu}{\nu^2-1}[\frac{1}{s}S_{2,\nu}(\frac{s}{a}) - \frac{1}{a}] = \frac{\nu}{s}S_{0,\nu}(\frac{s}{a})$	Re s > o
	3	$\cosh(2n \sinh^{-1}t)$	$O_{2n}(s)$	n = 0,1,2,...
	4	$\cosh(\nu \sinh^{-1}t)$	$\frac{1}{s}S_{1,\nu}(s)$	Re s > o
	5	$\int_0^t \sinh(\nu \sinh^{-1}u)\,du$	$\frac{\nu}{(\nu^2-1)s}[\frac{1}{s}S_{2,\nu}(s)-1]$	Re s > o
8.7.1	1	$\sinh[\nu \cosh^{-1}(1+\frac{t}{a})]$	$\frac{\nu}{s}e^{as}K_\nu(as)$	|arg a| < π Re s > o
8.7.2	1	$\frac{\sinh(\nu \sinh^{-1}t)}{(1+t^2)^{\frac{1}{2}}}$	$\nu S_{-1,\nu}(s)$	Re s > o
	2	$\frac{\sinh(\nu \sinh^{-1}\frac{t}{a})}{t^{\frac{1}{2}}(t^2+a^2)^{\frac{1}{2}}}$	$\frac{\pi^{\frac{3}{2}}s^{\frac{1}{2}}}{8i}[e^{\frac{i\nu\pi}{2}}H^{(1)}_{\frac{1+\nu}{2}}(\frac{as}{2})H^{(2)}_{\frac{1-\nu}{2}}(\frac{as}{2}) - e^{-\frac{i\nu\pi}{2}}H^{(1)}_{\frac{1-\nu}{2}}(\frac{as}{2})H^{(2)}_{\frac{1+\nu}{2}}(\frac{as}{2})]$	|arg a| < π Re s > o

		$f(t)$	$g(s)$	
8.7.2 (Contd.)	3	$\sinh[\nu \sinh^{-1}(\frac{t^{\frac{1}{2}}}{a^{\frac{1}{2}}})]$	$\frac{\nu}{s}e^{as}K_\nu(as)$	|arg a| < π Re s > o
	4	$\frac{\cosh(\nu \sinh^{-1}t)}{(1+t^2)^{\frac{1}{2}}}$	$S_{0,\nu}(s)$	Re s > o
	5	$\frac{\cosh(\nu \sinh^{-1}\frac{t}{a})}{t^{\frac{1}{2}}(t^2+a^2)^{\frac{1}{2}}}$	$\frac{\pi^{\frac{3}{2}}s^{\frac{1}{2}}}{8}[e^{\frac{i\nu\pi}{2}}H^{(1)}_{\frac{1+\nu}{2}}(\frac{as}{2})H^{(2)}_{\frac{1-\nu}{2}}(\frac{as}{2}) + e^{-\frac{i\nu\pi}{2}}H^{(1)}_{\frac{1-\nu}{2}}(\frac{as}{2})H^{(2)}_{\frac{1+\nu}{2}}(\frac{as}{2})]$	|arg a| < π Re s > o
	6	$\frac{\cosh(\nu \sinh^{-1}\frac{t^{\frac{1}{2}}}{a^{\frac{1}{2}}})}{(t^2+2at)^{\frac{1}{2}}}$	$e^{as}K_\nu(as)$	Re s > o |arg a| < π
	7	$\frac{\cosh(\nu \sinh^{-1}\frac{t^{\frac{1}{2}}}{a^{\frac{1}{2}}})}{[t(t+a)(t+2a)]^{\frac{1}{2}}}$	$(\frac{s}{2\pi})^{\frac{1}{2}}e^{as}K_{\frac{\nu}{2}+\frac{1}{4}}(\frac{as}{2})K_{\frac{\nu}{2}-\frac{1}{4}}(\frac{as}{2})$	|arg a| < π Re s > o
	8	$\frac{\cosh(\nu \sinh^{-1}\frac{t}{a}) + i\sinh(\nu \sinh^{-1}\frac{t}{a})}{t^{\frac{1}{2}}(t^2+a^2)^{\frac{1}{2}}}$	$\frac{\pi^{\frac{3}{2}}}{4}e^{\frac{\nu\pi i}{2}}s^{\frac{1}{2}}H^{(1)}_{\frac{1+\nu}{2}}(\frac{as}{2})H^{(2)}_{\frac{1-\nu}{2}}(\frac{as}{2})$	Re a > o Re s > o
8.7.2.1	1	$\frac{\cosh[\nu \cosh^{-1}(1+\frac{t}{a})]}{(t^2+2at)^{\frac{1}{2}}}$	$e^{as}K_\nu(as)$	|arg a| < π Re s > o
	2	$\frac{\cosh[\nu \cosh^{-1}(1+\frac{t}{a})]}{[t(t+a)(t+2a)]^{\frac{1}{2}}}$	$(\frac{s}{2\pi})^{\frac{1}{2}}e^{as}K_{\frac{\nu}{2}+\frac{1}{4}}(\frac{as}{2})K_{\frac{\nu}{2}-\frac{1}{4}}(\frac{as}{2})$	|arg a| < π Re s > o
9	1	$A_n(at)$	$\frac{1}{s}(\frac{a}{s}-1)(\frac{a}{s}-\frac{1}{2})\cdots(\frac{a}{s}-\frac{1}{n})$	n = 1,2,3,... Re s > o
	2	$C_n^\nu(-it)$	$\frac{A_{n,\nu}(s)}{2^\nu i^n(n+\nu)\Gamma(\nu)}$	n = 0,1,2,... Re s > o
	3	$H_{2n}(t)$	$\frac{(2n-1)!}{(-2)^n(n-1)!s}A_n(1-n,\frac{2}{s^2})$	n = 0,1,2,... Re s > o

		f(t)	g(s)	
9 (Contd.)	4	$He_{2n+1}(t)$	$\frac{(2n+1)!}{(-2)^n n! s^2} A_n(1-n, \frac{2}{s^2})$	n = 0,1,2,... Re s > o
	5	$L_n(t)$	$\frac{(s-1)^n}{s^{n+1}}$	n = 0,1,2,... Re s > o
	6	$L_n^a(t)$	$\sum_{m=0}^{n} \binom{a+m-1}{m} \frac{(s-1)^{n-m}}{s^{n-m+1}}$	n = 0,1,2,... Re s > o
	7	$L_n(at)L_n(bt)$	$\frac{(s-a-b)^n}{s^{n+1}} P_n\left[\frac{s^2-(a+b)s+2ab}{s(s-a-b)}\right]$	n = 0,1,2,... Re s > o
	8	$L_n[(a-b)t]L_n[(a+b)t]$	$\frac{(s-2a)^n}{s^{n+1}} P_n\left[\frac{s^2+2(1-2a)(a^2-b^2)}{s(s-2a)}\right]$	Re s > o
	9	$T_a^{(n)}(t)$	$\frac{(1-s)^n}{n! s^{n+a+1}}$	Re a > - 1 Re s > o
9.1	1	$t^n L_n(t)$	$\frac{n!}{s^{n+1}} P_n(1-\frac{2}{s})$	n = 0,1,2,... Re s > o
	2	$P_n(1+t)$	$(\frac{2}{\pi s})^{\frac{1}{2}} e^s K_{n+\frac{1}{2}}(s)$	n = 0,1,2,... Re s > o
	3	$P_n(1-t)$	$e^{-s}(\frac{1}{s}\frac{d}{ds})^n(\frac{e^s}{s})$ $= s^n(1+\frac{1}{2}\frac{d}{ds})^n(\frac{1}{s^{n+1}})$ $= \frac{1}{s}\,{}_2F_0[-n, n+1; \; ; \frac{1}{2s}]$ $= \frac{1}{s} A_n(1, \frac{1}{2s})$	n = 0,1,2,... Re s > o
	4	$(t+1)^n P_n(\frac{t-1}{t+1})$	$\frac{n!}{s^{n+1}} L_n(s)$	n = 0,1,2,... Re s > o

		f(t)	g(s)	
9.1 (Contd.)	5	$t^m P_n(m;t)$	$m! \frac{(s-1)^n}{s^{m+1}}$	n,m = 0,1,2,... Re s > o
9.2	1	$\frac{1}{t^{\frac{1}{2}}} C_{2n}^{\nu}(t^{\frac{1}{2}})$	$(-1)^n (\frac{\pi}{s})^{\frac{1}{2}} \frac{\Gamma(n+\nu)}{n!\Gamma(\nu)} A_n(\nu, \frac{1}{s})$	n = 0,1,2,... Re s > o
	2	$\frac{1}{t^{\frac{1}{2}}} C_{2n+1}^{\nu}(t^{\frac{1}{2}})$	$\frac{(-1)^n \Gamma(n+\nu+1)\pi^{\frac{1}{2}}}{n!\Gamma(\nu) s^{\frac{3}{2}}} A_n(\nu+1, \frac{1}{s})$	n = 0,1,2,... Re s > o
	3	$He_{2n+1}(t^{\frac{1}{2}})$	$\frac{\pi^{\frac{1}{2}}}{2^{n+1}} \frac{(2n+1)!}{n!} \frac{(\frac{1}{2}-s)^n}{s^{n+\frac{3}{2}}}$	n = 0,1,2,... Re s > o
	4	$\frac{1}{t^{\frac{1}{2}}} He_{2n}(t^{\frac{1}{2}})$	$\frac{\pi^{\frac{1}{2}}}{2^n} \frac{(2n)!}{n!} \frac{(\frac{1}{2}-s)^n}{s^{n+\frac{1}{2}}}$	n = 0,1,2,... Re s > o
	5	$t^{n+\frac{1}{2}} He_{2n+1}(t^{\frac{1}{2}})$	$\frac{(2n+1)!}{2^n s^{n+2}} U_{n+1}(\frac{1}{s}-1)$	n = 0,1,2,... Re s > o
	6	$t^{\frac{n-1}{2}} He_n(t^{\frac{1}{2}})$	$\frac{\pi^{\frac{1}{2}} n!}{2^{\frac{n}{2}} s^{\frac{n+1}{2}}} P_n\left[\frac{1}{(2s)^{\frac{1}{2}}}\right]$	n = 0,1,2,... Re s > o
	7	$t^{\frac{n}{2}+\nu} He_n[(2t)^{\frac{1}{2}}]$	$\frac{n!\Gamma(\nu+1)}{2^{\frac{n}{2}} s^{\frac{n}{2}+\nu+1}} C_n^{\nu+1}(\frac{1}{s^{\frac{1}{2}}})$	n = 0,1,2,... Re s > o
	8	$t^{a-1} He_n(t)$	$\sum_{m=0}^{[\frac{n}{2}]} \frac{n!\Gamma(a+n-2m)}{m!(n-2m)!} (-\frac{1}{2})^m s^{2m-a-n}$	n = 0,1,2,... Re a > o for n even Re a > - 1 for n odd Re s > o
	9	$t^{a-\frac{n}{2}-1} He_n(t^{\frac{1}{2}})$	$\frac{\Gamma(a)}{s^a}\,{}_2F_1[-\frac{n}{2}, \frac{1-n}{2}; 1-a; 2s]$ If a is an integer take the first $1+[\frac{n}{2}]$ terms of the series	n = 0,1,2,... Re a > $\frac{n}{2}$ for n even Re a > $\frac{n-1}{2}$ for n odd Re s > o

		$f(t)$	$g(s)$	
9.2 (Contd.)	10	$\frac{1}{t^{\frac{1}{2}}} He_{2n}[(2at)^{\frac{1}{2}}]He_{2m}[(2bt)^{\frac{1}{2}}]$	$\frac{\pi^{\frac{1}{2}}(2m+2n)!}{(-2)^{m+n}(m+n)!}\frac{(s-a)^n(s-b)^m}{s^{m+n+\frac{1}{2}}}\cdot {}_2F_1[-m,-n;-m-n+\frac{1}{2};\frac{s(s-a-b)}{(s-a)(s-b)}]$	$m,n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	11	$\frac{1}{t^{\frac{1}{2}}} He_{2n+1}[(2at)^{\frac{1}{2}}]He_{2m+1}[(2bt)^{\frac{1}{2}}]$	$\frac{(ab)^{\frac{1}{2}}(2m+2n+2)!}{\pi^{\frac{1}{2}}(-2)^{m+n+1}(m+n+1)!}\frac{(s-a)^n(s-b)^m}{s^{m+n+\frac{3}{2}}}\cdot {}_2F_1\left[-m,-n;-m-n-\frac{1}{2};\frac{s(s-a-b)}{(s-a)(s-b)}\right]$	$m,n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	12	$\frac{1}{t^{\frac{1}{2}}} He_n[(at)^{\frac{1}{2}}]He_n[(-at)^{\frac{1}{2}}]$	$\frac{n!\,i^n\pi^{\frac{1}{2}}P_n(\frac{a}{2s})}{s^{\frac{1}{2}}}$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	13	$\frac{1}{t^{\frac{1}{2}}}\left[He_n\left(\frac{a+t^{\frac{1}{2}}}{b}\right)+He_n\left(\frac{a-t^{\frac{1}{2}}}{b}\right)\right]$	$(\frac{2\pi}{s})^{\frac{1}{2}}\left(1-\frac{1}{2b^2s}\right)^{\frac{n}{2}} He_n\left[\frac{a}{(b^2-\frac{1}{2s})^{\frac{1}{2}}}\right]$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	14	$\frac{1}{t^{\frac{1}{2}}}\left[He_m\left(\frac{a+t^{\frac{1}{2}}}{c}\right)He_n\left(\frac{b+t^{\frac{1}{2}}}{d}\right)+He_m\left(\frac{a-t^{\frac{1}{2}}}{c}\right)He_n\left(\frac{b-t^{\frac{1}{2}}}{d}\right)\right]$	$\frac{2\pi^{\frac{1}{2}}}{c^m d^n(2s)^{\frac{m+n+1}{2}}}\sum_{k=0}^{n}\left\{\binom{m}{k}\binom{n}{k}k!\cdot(2c^2s-1)^{\frac{m+k}{2}}(2d^2s-1)^{\frac{n+k}{2}}\cdot He_{m-k}\left[\frac{a}{(c^2-\frac{1}{2s})^{\frac{1}{2}}}\right]He_{n-k}\left[\frac{b}{(d^2-\frac{1}{2s})^{\frac{1}{2}}}\right]\right\}$	$m,n=0,1,2,\ldots$ $m\geq n$ $\mathrm{Re}\, s>0$
	15	$t^aL_n^a(t)$	$\frac{\Gamma(a+n+1)}{n!}\frac{(s-1)^n}{s^{a+n+1}}$	$\mathrm{Re}\, a>-1$ $n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	16	$t^bL_n^a(t)$	$\frac{\Gamma(b+n+1)}{n!}\frac{(s-1)^n}{s^{b+n+1}}{}_2F_1[-n,a-b;-b-n;\frac{s}{s-1}]$ $=\frac{\Gamma(a+n+1)\Gamma(b+1)}{n!\Gamma(a+1)s^{b+1}}{}_2F_1[-n,b+1;a+1;\frac{1}{s}]$	$\mathrm{Re}\, b>-1$ $n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$

		$f(t)$	$g(s)$	
9.2 (Contd.)	17	$t^{n+2a}L_n^a(t)$	$\frac{\Gamma(2a+1)\Gamma(n+a+1)}{\Gamma(a+1)s^{n+2a+1}}C_n^{a+\frac{1}{2}}(1-\frac{2}{s})$	$n=0,1,2,\ldots$ $\mathrm{Re}\, a>-\frac{1+n}{2}$ $\mathrm{Re}\, s>0$
	18	$t^{b+n}L_n^a(t)$	$\frac{\Gamma(b+n+1)}{s^{b+n+1}}P_n^{a,b-a}(1-\frac{2}{s})$	$n=0,1,2,\ldots$ $\mathrm{Re}\, b>-1-n$ $\mathrm{Re}\, s>0$
	19	$t^aL_n^a(bt)L_m^a(ct)$	$\frac{\Gamma(m+n+a+1)}{m!n!}\frac{(s-b)^n(s-c)^m}{s^{m+n+a+1}}{}_2F_1[-m,-n;-m-n-a;\frac{s(s-b-c)}{(s-b)(s-c)}]$	$\mathrm{Re}\, a>-1$ $n,m=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	20	$t^{2a}L_n^a(bt)L_n^a(ct)$	$\frac{\Gamma(2a+1)\Gamma(n+a+1)}{n!s^{2a+1}}\sum_{r=0}^{\infty}\left\{\frac{(-1)^r(1-\frac{b+c}{2s})^{n-r}}{r!\,\Gamma(a-r+1)}C_{n+r}^{a+\frac{1}{2}}\left[\frac{s^2-(b+c)s+2bc}{s(s-b-c)}\right]\right\}$	$\mathrm{Re}\, a>-\frac{1}{2}$ $n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	21	$t^{2a}[L_n^a(t)]^2$	$\frac{2^{2a}\Gamma(a+\frac{1}{2})\Gamma(n+\frac{1}{2})}{\pi(n!)^2s^{2a+1}}{}_2F_1[-n,a+\frac{1}{2};\frac{1}{2}-n;(1-\frac{2}{s})^2]$	$\mathrm{Re}\, a>-\frac{1}{2}$ $n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	22	$P_{2n+1}(t^{\frac{1}{2}})$	$\frac{(-1)^n\pi^{\frac{1}{2}}(2n+1)!}{2s^{\frac{3}{2}}}A_n(\frac{3}{2},\frac{1}{s})$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	23	$\frac{1}{t^{\frac{1}{2}}}P_{2n}(t^{\frac{1}{2}})$	$(-1)^n(2n)!(\frac{\pi}{s})^{\frac{1}{2}}A_n(\frac{1}{2},\frac{1}{s})$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	24	$t^{a-1}P_n(m,t)$	$\frac{m!\Gamma(a-n)}{(m-n)!s^{a-n}}{}_2F_1[-n,a-n;m-n+1;\frac{(s^2+a^2)^{\frac{1}{2}}}{s}]$	$\mathrm{Re}\, a>\min(n,m)$ $n,m=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
9.2.1	1	$t^{\nu-\frac{1}{2}}C_n^{\nu}(2t-1)$	$\frac{(-1)^n\Gamma(2\nu+n)\Gamma(\nu+\frac{1}{2})}{n!\Gamma(2\nu)s^{\nu+\frac{1}{2}}}A_n(2\nu,\frac{1}{s})$	$n=0,1,2,\ldots$ $\mathrm{Re}\,\nu>-\frac{1}{2}$ $\mathrm{Re}\, s>0$
	2	$t^{n-1}He_{2n}(t^{\frac{1}{2}})$	$\frac{\Gamma(2n)}{2^{n-1}(-s)^n}T_n(1-\frac{1}{s})$	$n=1,2,3,\ldots$ $\mathrm{Re}\, s>0$

		$f(t)$	$g(s)$	
9.2.1 (Contd.)	3	$t^a(1+t)^b P_n^{a,b}(1+2t)$	$\frac{\Gamma(n+a+1)}{n!}\frac{e^{\frac{s}{2}}}{s^{\frac{a+b}{2}+1}}W_{b-a,\frac{a+b+1}{2}+n}(s)$	$n=0,1,2,\ldots$ Re $a>-1$ Re $s>0$
	4	$t^b(1+t)^n P_n^{a,b}(\frac{t-1}{t+1})$	$\frac{\Gamma(n+b+1)}{s^{n+b+1}}L_n^a(s)$	$n=0,1,2,\ldots$ Re $b>-1$ Re $s>0$
	5	$\frac{(1+t)^n}{t^{\frac{1}{2}}}T_n(\frac{1-t}{1+t})$	$\frac{\pi^{\frac{1}{2}}}{2^n s^{n+\frac{1}{2}}}He_{2n}[(2s)^{\frac{1}{2}}]$	$n=0,1,2,\ldots$ Re $s>0$
	6	$\frac{1}{t^{\frac{1}{2}}}T_n(1-2t)$	$(\frac{\pi}{s})^{\frac{1}{2}}A_n(0,\frac{1}{s})$	$n=0,1,2,\ldots$ Re $s>0$
	7	$t^{\frac{1}{2}}U_n(2t-1)$	$(-1)^{n-1}\frac{n\pi^{\frac{1}{2}}}{2s^{\frac{3}{2}}}A_{n-1}(2,\frac{1}{s})$	$n=0,1,2,\ldots$ Re $s>0$
	8	$t^{\frac{1}{2}}(t+1)^n U_{n+1}(\frac{1-t}{1+t})$	$\frac{\pi^{\frac{1}{2}}(n+1)}{2^{n+\frac{3}{2}}s^{n+2}}He_{2n+1}[(2s)^{\frac{1}{2}}]$	$n=0,1,2,\ldots$ Re $s>0$
9.3	1	$He_{2n+1}[a^{\frac{1}{2}}(1-e^{-t})^{\frac{1}{2}}]$	$(-2)^n a^{\frac{1}{2}}B(s,n+\frac{3}{2})n!\,L_n^{s+\frac{1}{2}}(\frac{a}{2})$	$n=0,1,2,\ldots$ Re $s>0$
	2	$\frac{He_{2n}[a^{\frac{1}{2}}(1-e^{-t})^{\frac{1}{2}}]}{(e^t-1)^{\frac{1}{2}}}$	$(-2)^n B(s+\frac{1}{2},n+\frac{1}{2})n!\,L_n^s(\frac{a}{2})$	$n=0,1,2,\ldots$ Re $s>-\frac{1}{2}$
	3	$e^{-at}L_n(2at)$	$\frac{(s-a)^n}{(s+a)^{n+1}}$	$n=0,1,2,\ldots$ Re $s>-$ Re a
	4	$e^{-t}\sum_{m=0}^{n}a_{mn}L_m(2t)$ where a_{mn} is given by $P_n(x)=\sum_{m=0}^{n}a_{mn}x^m$	$\frac{1}{s+1}P_n(\frac{s-1}{s+1})$	Re $s>-1$

		$f(t)$	$g(s)$	
9.3 (Contd.)	5	$P_n(e^{-t})$	$\frac{(s-1)(s-2)\ldots(s-n+1)}{(s+n)(s+n-2)\ldots(s-n+2)}$	$n=2,3,4,\ldots$ Re $s>0$
	6	$\frac{[1-(1-e^{-t})^{\frac{1}{2}}]^a+(-1)^n[1+(1-e^{-t})^{\frac{1}{2}}]^a}{(1-e^{-t})^{\frac{1}{2}}}P_n[(1-e^{-t})^{\frac{1}{2}}]$	$2^{2s+a}B(s,s+a)\,{}_3F_2\left[\begin{matrix}-n,n+1,s+a;\\1,2s+a;\end{matrix}\,1\right]$	$n=0,1,2,\ldots$ Re $s>0$
	7	$\frac{T_n(e^{-t})}{(1-e^{-2t})^{\frac{1}{2}}}$	$\frac{\pi\Gamma(s)}{2^s\Gamma(\frac{s-n+1}{2})\Gamma(\frac{s+n+1}{2})}$	$n=0,1,2,\ldots$ Re $s>0$
9.3.1	1	$t^n e^{-bt}L_n(at)$	$\frac{n!P_n(\frac{s+b-2a}{s+b})}{(s+b)^{n+1}}$	$n=0,1,2,\ldots$ Re $s>-$ Re b
	2	$\frac{e^{-\frac{b}{t}}L_n^a(\frac{b}{t})}{t^n}$	$\frac{(-1)^n 2s^{\frac{a}{2}+n}}{n!\,b^{\frac{a}{2}}}K_a(2b^{\frac{1}{2}}s^{\frac{1}{2}})$	Re $b>0$ Re $s>0$
9.3.2	1	$\frac{e^{-\frac{a}{2t}}He_n(\frac{a^{\frac{1}{2}}}{t^{\frac{1}{2}}})}{t^{\frac{n+1}{2}}}$	$2^{\frac{n}{2}}\pi^{\frac{1}{2}}s^{\frac{n-1}{2}}e^{-(2as)^{\frac{1}{2}}}$	Re $a>0$ $n=0,1,2,\ldots$ Re $s>0$
	2	$\frac{1}{t^{\frac{1}{2}}}e^{bt}He_{2n}(at^{\frac{1}{2}})$	$(-2)^{-n}\pi^{\frac{1}{2}}\frac{(2n)!}{n!}\frac{(s-b-\frac{a^2}{2})^n}{(s-b)^{n+\frac{1}{2}}}$	$n=0,1,2,\ldots$ Re $s>$ Re b
	3	$e^{bt}He_{2n+1}(at^{\frac{1}{2}})$	$-(-2)^{n-1}\pi^{\frac{1}{2}}a\frac{(2n+1)!}{n!}\frac{(s-b-\frac{a^2}{2})^n}{(s-b)^{n+\frac{3}{2}}}$	$n=0,1,2,\ldots$ Re $s>$ Re b
	4	$\frac{1}{t^{\frac{1}{2}}}e^{-(a+b)t}He_n[(4at)^{\frac{1}{2}}]\ He_n[(4bt)^{\frac{1}{2}}]$	$\pi^{\frac{1}{2}}n!\frac{(a+b-s)^{\frac{n}{2}}}{(a+b+s)^{\frac{n+1}{2}}}P_n\left[\frac{2a^{\frac{1}{2}}b^{\frac{1}{2}}}{[(a+b)^2-s^2]^{\frac{1}{2}}}\right]$	$n=0,1,2,\ldots$ Re $s>-$ Re$(a+b)$
	5	$t^a e^{bt}L_n^a(ct)$	$\frac{\Gamma(a+n+1)}{n!}\frac{(s-c-b)^n}{(s-b)^{a+n+1}}$	Re $a>-1$ $n=0,1,2,\ldots$ Re $s>$ Re b

		$f(t)$	$g(s)$	
9.5	1	$P_{2n}[\cos(at)]$	$\dfrac{[s^2+a^2][s^2+(3a)^2]\cdots[s^2+(2na-a)^2]}{s[s^2+(2a)^2][s^2+(4a)^2]\cdots[s^2+(2na)^2]}$	$n=1,2,3,\ldots$ a Real Re $s > 0$
	2	$P_{2n+1}[\cos(at)]$	$\dfrac{s[s^2+(2a)^2][s^2+(4a)^2]\cdots[s^2+(2na)^2]}{[s^2+a^2][s^2+(3a)^2]\cdots[s^2+(2na+a)^2]}$	$n=1,2,3,\ldots$ a Real Re $s > 0$
9.7	1	$P_{2n}[\cosh(at)]$	$\dfrac{[s^2-a^2][s^2-(3a)^2]\cdots[s^2-(2na-a)^2]}{s[s^2-(2a)^2][s^2-(4a)^2]\cdots[s^2-(2na)^2]}$	$n=1,2,3,\ldots$ a Real Re $s > 2n\lvert a\rvert$
	2	$P_{2n+1}[\cosh(at)]$	$\dfrac{s[s^2-(2a)^2][s^2-(4a)^2]\cdots[s^2-(2na)^2]}{[s^2-a^2][s^2-(3a)^2]\cdots[s^2-(2na+a)^2]}$	$n=1,2,3,\ldots$ a Real Re $s > (2n+1)\lvert a\rvert$
10	1	$J_0(at)$	$\dfrac{1}{(s^2+a^2)^{\frac12}}$	Re $s > \lvert \text{Im } a\rvert$
	2	$J_0^2(at)$	$\dfrac{2K\left[\dfrac{2a}{(s^2+4a^2)^{\frac12}}\right]}{\pi(s^2+4a^2)^{\frac12}}$	Re $s > 2\lvert \text{Im } a\rvert$
	3	$J_0(at)J_0(bt)$	$\dfrac{1}{\pi}\displaystyle\int_{-a}^{a}\dfrac{du}{(a^2-u^2)^{\frac12}[b^2+(s+iu)^2]^{\frac12}}$	Re $s > \lvert \text{Im } a\rvert + \lvert \text{Im } b\rvert$
	4	$J_1^2(at)$	$\dfrac{(s^2+4a^2)^{\frac12}}{\pi a^2}\left\{\dfrac{s^2+2a^2}{s^2+4a^2}K\left[\dfrac{2a}{(s^2+4a^2)^{\frac12}}\right]-E\left[\dfrac{2a}{(s^2+4a^2)^{\frac12}}\right]\right\}$	Re $s > 2\lvert \text{Im } a\rvert$
	5	$J_0^2(at)+J_1^2(at)$	$\dfrac{4}{\pi}\dfrac{D\left[\dfrac{2a}{(s^2+4a^2)^{\frac12}}\right]}{(s^2+4a^2)^{\frac12}}$	Re $s > \lvert \text{Im } a\rvert$
	6	$J_0^2(at)-J_1^2(at)$	$\dfrac{4}{\pi}\dfrac{B\left[\dfrac{2a}{(s^2+4a^2)^{\frac12}}\right]}{(s^2+4a^2)^{\frac12}}$	Re $s > \lvert \text{Im } a\rvert$
	7	$t\,J_0(at)J_1(at)$	$\dfrac{K\left[\dfrac{2a}{(s^2+4a^2)^{\frac12}}\right]-E\left[\dfrac{2a}{(s^2+4a^2)^{\frac12}}\right]}{\pi a(s^2+4a^2)^{\frac12}}$	Re $s > 2\lvert \text{Im } a\rvert$

		$f(t)$	$g(s)$	
10 (Contd.)	8	$\dfrac{J_0(at)J_1(bt)}{t}$	$\dfrac{1}{b\pi}\displaystyle\int_{-b}^{b}\dfrac{(b^2-u^2)^{\frac12}du}{[a^2+(s+iu)^2]^{\frac12}}$	Re $s > \lvert \text{Im } a\rvert + \lvert \text{Im } b\rvert$
	9	$J_0(at)[J_0(at)-2atJ_1(at)]$	$\dfrac{2E\left[\dfrac{2a}{(s^2+4a^2)^{\frac12}}\right]}{\pi(s^2+4a^2)^{\frac12}}$	Re $s > \lvert \text{Im } a\rvert$
	10	$J_{\frac12}(at)$	$\left[\dfrac{(s^2+a^2)^{\frac12}-s}{a(s^2+a^2)}\right]^{\frac12}$	Re $s > \lvert \text{Im } a\rvert$
	11	$J_{-\frac12}(at)$	$\left[\dfrac{(s^2+a^2)^{\frac12}+s}{a(s^2+a^2)}\right]^{\frac12}$	Re $s > \lvert \text{Im } a\rvert$
	12	$J_n^2(at)$	$(-1)^n\dfrac{2}{\pi}\displaystyle\int_0^{\frac{\pi}{2}}\dfrac{\cos 2n\theta\, d\theta}{[s^2+4a^2\cos^2\theta]^{\frac12}}$	n an integer Re $s > 2\lvert \text{Im } a\rvert$
	13	$t\,J_\nu(at)$	$\dfrac{a^\nu[s+\nu(s^2+a^2)^{\frac12}]}{(s^2+a^2)^{\frac32}[s+(s^2+a^2)^{\frac12}]^\nu}$	Re $\nu > -2$ Re $s > \lvert \text{Im } a\rvert$
	14	$J_\nu(at)$	$\dfrac{a^\nu}{(s^2+a^2)^{\frac12}[s+(s^2+a^2)^{\frac12}]^\nu}$ $=\dfrac{e^{-\nu\sinh^{-1}\frac{s}{a}}}{(s^2+a^2)^{\frac12}}$	Re $\nu > -1$ Re $s > \lvert \text{Im } a\rvert$
	15	$t\,J_\nu^2(at)$	$\dfrac{2^{2\nu+1}a^{2\nu}(\nu+\frac12)}{\pi s^{2\nu+2}}B(\nu+\tfrac12,\nu+\tfrac12)\ {}_2F_1[\nu+\tfrac12,\nu+\tfrac32;2\nu+1;-\tfrac{4a^2}{s^2}]$	Re $\nu > -1$ Re $s > 2\lvert \text{Im } a\rvert$
	16	$\dfrac{1}{t}J_\nu(at)$	$\dfrac{a^\nu}{\nu[s+(s^2+a^2)^{\frac12}]^\nu}$	Re $\nu > 0$ Re $s > \lvert \text{Im } a\rvert$
	17	$\dfrac{1}{t}J_\nu(\tfrac{a}{t})$	$2J_\nu[(2as)^{\frac12}]K_\nu[(2as)^{\frac12}]$	$a > 0$ Re $s > 0$
	18	$J_\nu(at)J_\nu(bt)$	$\dfrac{1}{\pi a^{\frac12}b^{\frac12}}Q_{\nu-\frac12}\left(\dfrac{s^2+a^2+b^2}{2ab}\right)$	Re $\nu > -\frac12$ Re $s > \lvert \text{Im } a\rvert + \lvert \text{Im } b\rvert$

		$f(t)$	$g(s)$	
10 (Contd.)	19	$J_{\nu-1}(at)-J_{\nu+1}(at)$	$\frac{2a^{\nu-1}s}{(s^2+a^2)^{\frac{1}{2}}[s+(s^2+a^2)^{\frac{1}{2}}]^{\nu}}$	$Re\,\nu > o$ $Re\ s > \lvert Im\ a\rvert$
	20	$Y_0(at)$	$-\frac{2\sinh^{-1}(\frac{s}{a})}{\pi(s^2+a^2)^{\frac{1}{2}}}$ $= -\frac{2}{\pi}\frac{1}{(s^2+a^2)^{\frac{1}{2}}}\log\frac{s+(s^2+a^2)^{\frac{1}{2}}}{a}$	$Re\ s > \lvert Im\ a\rvert$
	21	$t\,Y_0(at)$	$\frac{2\left[1-\frac{s}{(s^2+a^2)^{\frac{1}{2}}}\log\frac{s+(s^2+a^2)^{\frac{1}{2}}}{a}\right]}{\pi(s^2+a^2)}$	$Re\ s > \lvert Im\ a\rvert$
	22	$t\,Y_1(at)$	$-\frac{2s}{\pi a(s^2+a^2)}-\frac{2a\log\frac{s+(s^2+a^2)^{\frac{1}{2}}}{a}}{\pi(s^2+a^2)^{\frac{3}{2}}}$	$Re\ s > \lvert Im\ a\rvert$
	23	$Y_{-n-\frac{1}{2}}(at)$	$\frac{(-1)^n[(s^2+a^2)^{\frac{1}{2}}-s]^{n+\frac{1}{2}}}{a^{n+\frac{1}{2}}(s^2+a^2)^{\frac{1}{2}}}$	n an integer $Re\ s > \lvert Im\ a\rvert$
	24	$Y_{\nu}(at)$	$\frac{\cot(\nu\pi)[(s^2+a^2)^{\frac{1}{2}}-s]^{\nu}-\operatorname{cosec}(\nu\pi)[(s^2+a^2)^{\frac{1}{2}}+s]^{\nu}}{a^{\nu}(s^2+a^2)^{\frac{1}{2}}}$	$\lvert Re\,\nu\rvert < 1$ $Re\ s > \lvert Im\ a\rvert$
	25	$\frac{Y_{\nu}(\frac{a}{t})}{t}$	$2Y_{\nu}[(2as)^{\frac{1}{2}}]K_{\nu}[(2as)^{\frac{1}{2}}]$	$a > o$ $Re\ s > o$
	26	$\log a\,J_0(at)-\frac{\pi}{2}Y_0(at)$	$\frac{\log[s+(s^2+a^2)^{\frac{1}{2}}]}{(s^2+a^2)^{\frac{1}{2}}}$	$Re\ s > \lvert Im\ a\rvert$
10.1	1	$\frac{1}{t^2}J_1^2(at)$	$\frac{a}{2\pi}\int_0^{\pi}[(\frac{s^2}{a^2}+2-2\cos\theta)^{\frac{1}{2}}-\frac{s}{a}](1+\cos\theta)\,d\theta$	$Re\ s > o$
	2	$t^nJ_n(at)$	$\frac{1.3.5\ldots(2n-1)a^n}{(s^2+a^2)^{n+\frac{1}{2}}}$	$n = 1,2,3,\ldots$ $Re\ s > \lvert Im\ a\rvert$

		$f(t)$	$g(s)$	
10.1 (Contd.)	3	$J_{\nu}(at^2)$	$\frac{\Gamma(\nu+\frac{1}{2})}{(2\pi a)^{\frac{1}{2}}}D_{-\nu-\frac{1}{2}}\left[\frac{s\,e^{\frac{\pi i}{4}}}{(2a)^{\frac{1}{2}}}\right]D_{-\nu-\frac{1}{2}}\left[\frac{s\,e^{-\frac{\pi i}{4}}}{(2a)^{\frac{1}{2}}}\right]$	$Re\,\nu > -\frac{1}{2}$ $Re\ s > o$
	4	$t^2J_{\nu}(at)$	$\frac{[(s^2+a^2)^{\frac{1}{2}}-s]^{\nu}}{a^{\nu}(s^2+a^2)^{\frac{3}{2}}}\left[\nu^2-1+\frac{3s[s+\nu(s^2+a^2)^{\frac{1}{2}}]}{s^2+a^2}\right]$	$Re\,\nu > -3$ $Re\ s > \lvert Im\ a\rvert$
	5	$\frac{a}{t}J_{\nu-1}(at)-\frac{\nu+1}{t^2}J_{\nu}(at)$	$\frac{s}{\nu a^{\nu}}[(s^2+a^2)^{\frac{1}{2}}-s]^{\nu}$	$Re\,\nu > 1$ $Re\ s > \lvert Im\ a\rvert$
	6	$\frac{1}{t^2}J_{\nu}(at)$	$\frac{[(s^2+a^2)^{\frac{1}{2}}-s]^{\nu-1}}{2\nu(\nu-1)a^{\nu-2}}+\frac{[(s^2+a^2)^{\frac{1}{2}}-s]^{\nu+1}}{2\nu(\nu+1)a^{\nu}}$	$Re\,\nu > 1$ $Re\ s > \lvert Im\ a\rvert$
10.2	1	$J_0(at^{\frac{1}{2}})$	$\frac{e^{-\frac{a^2}{4s}}}{s}$	$Re\ s > o$
	2	$J_0^2(at^{\frac{1}{2}})$	$\frac{e^{-\frac{a^2}{2s}}M_{o,o}(\frac{a^2}{s})}{a\,s^{\frac{1}{2}}}$	$Re\ s > o$
	3	$J_0^2(at^{\frac{1}{2}})$	$\frac{1}{s}\,{}_1F_1[\frac{1}{2};1;-\frac{a^2}{s}]$	$Re\ s > o$
	4	$t^{\nu}J_0(at^{\frac{1}{2}})$	$\frac{\Gamma(\nu+1)e^{-\frac{a^2}{4s}}\,{}_1F_1[-\nu,1,\frac{a^2}{4s}]}{s^{\nu+1}}$	$Re\,\nu > -1$ $Re\ s > o$
	5	$\sum_{n=0}^{\infty}J_0[2(nt)^{\frac{1}{2}}]$	$\frac{1}{s(1-e^{-\frac{1}{s}})}$	$Re\ s > o$
	6	$J_0[a(t^2+bt)^{\frac{1}{2}}]$	$\frac{e^{\frac{b}{2}[s-(s^2+a^2)^{\frac{1}{2}}]}}{(s^2+a^2)^{\frac{1}{2}}}$ $= \left(\frac{b}{\pi}\right)^{\frac{1}{2}}\frac{e^{\frac{bs}{2}}K_{\frac{1}{2}}[\frac{b}{2}(s^2+a^2)^{\frac{1}{2}}]}{(s^2+a^2)^{\frac{1}{4}}}$	$\lvert\arg b\rvert < \pi$ $Re\ s > \lvert Im\ a\rvert$

		f(t)	g(s)	
10.2 (Contd.)	7	$t^{\frac{1}{2}}J_1(at^{\frac{1}{2}})$	$\frac{a}{2s^2}e^{-\frac{a^2}{4s}}$	Re s > o
	8	$\frac{1}{t^{\frac{1}{2}}}J_1(at^{\frac{1}{2}})$	$\frac{2}{a}(1-e^{-\frac{a^2}{4s}})$	Re s > o
	9	$t^{n-\frac{1}{2}}J_1(at^{\frac{1}{2}})$	$\frac{2(-1)^{n-1}n!}{a\,s^n}e^{-\frac{a^2}{8s}}k_{2n}(\frac{a^2}{8s})$	n = 1,2,3,... Re s > o
	10	$\frac{J_1[a(t^2+2bt)^{\frac{1}{2}}]}{(t^2+2bt)^{\frac{1}{2}}}$	$\frac{1-e^{-b[(s^2+a^2)^{\frac{1}{2}}-s]}}{ab}$	Re s > |Im a|
	11	$\frac{1}{t^{\frac{1}{2}}}J_{\frac{1}{3}}\left(\frac{1}{t^{\frac{1}{3}}}\right)$	$\frac{2^{\frac{1}{2}}}{3^{\frac{1}{2}}s^{\frac{1}{3}}}\left[e^{\frac{3}{2}(3s)^{\frac{1}{3}}}+\omega^2e^{\frac{3}{2}\omega(3s)^{\frac{1}{3}}}+\omega e^{\frac{3}{2}\omega^2(3s)^{\frac{1}{3}}}\right]$ where $\omega = -\frac{1}{2}+i\frac{3^{\frac{1}{2}}}{2}$	Re s > o
	12	$\frac{1}{t^{\frac{1}{2}}}J_{-\frac{1}{3}}\left(\frac{1}{t^{\frac{1}{3}}}\right)$	$\frac{2^{\frac{1}{2}}}{3^{\frac{1}{2}}s^{\frac{2}{3}}}\left[e^{\frac{3}{2}(3s)^{\frac{1}{3}}}+e^{\frac{3}{2}\omega(3s)^{\frac{1}{3}}}+e^{\frac{3}{2}\omega^2(3s)^{\frac{1}{3}}}\right]$ where $\omega = -\frac{1}{2}+i\frac{3^{\frac{1}{2}}}{2}$	Re s > o
	13	$t^{\nu}J_n(at)$	$\frac{\Gamma(\nu-n+1)P_{\nu}^{n}\left[\frac{s}{(s^2+a^2)^{\frac{1}{2}}}\right]}{(s^2+a^2)^{\frac{\nu+1}{2}}}$	n = 1,2,3,... Re ν > n − 1 Re s > |Im a|
	14	$t^{\mu}J_{\nu}(at)$	$\frac{\Gamma(\mu+\nu+1)}{\Gamma(\nu+1)}(\frac{a}{2})^{\nu}(s^2+a^2)^{-\frac{\mu+\nu+1}{2}}{}_2F_1[\frac{\mu+\nu+1}{2},\frac{\nu-\mu}{2};\nu+1;\ \frac{a^2}{s^2+a^2}]$	Re(μ+ν) > − 1 Re s > |Im a|
	15	$t^{\nu}J_{\nu}(at)$	$\frac{(2a)^{\nu}\Gamma(\nu+\frac{1}{2})}{\pi^{\frac{1}{2}}(s^2+a^2)^{\nu+\frac{1}{2}}}$	Re ν > − ½ Re s > |Im a|
	16	$t^{\nu+1}J_{\nu}(at)$	$\frac{2^{\nu+1}a^{\nu}\Gamma(\nu+\frac{3}{2})s}{\pi^{\frac{1}{2}}(s^2+a^2)^{\nu+\frac{3}{2}}}$	Re ν > − 1 Re s > |Im a|
	17	$J_{\nu}(at^{\frac{1}{2}})$	$\frac{a\pi^{\frac{1}{2}}}{4s^{\frac{3}{2}}}e^{-\frac{a^2}{8s}}\left[I_{\frac{\nu-1}{2}}\left(\frac{a^2}{8s}\right)-I_{\frac{\nu+1}{2}}\left(\frac{a^2}{8s}\right)\right]$	Re ν > − 2 Re s > o
10.2 (Contd.)	18	$\frac{1}{t^{\frac{1}{2}}}J_{\nu}(at^{\frac{1}{2}})$	$(\frac{\pi}{s})^{\frac{1}{2}}e^{-\frac{a^2}{8s}}I_{\frac{\nu}{2}}(\frac{a^2}{8s})$	Re ν > − 1 Re s > o
	19	$t^{\mu}J_{\nu}(at^{\frac{1}{2}})$	$\frac{\Gamma(\mu+1+\frac{\nu}{2})a^{\nu}}{2^{\nu}\Gamma(\nu+1)s^{\mu+1+\frac{\nu}{2}}}{}_1F_1[\mu+1+\frac{\nu}{2};\nu+1;-\frac{a^2}{4s}]$ $=\frac{2\Gamma(\mu+1+\frac{\nu}{2})}{a\Gamma(\nu+1)s^{\mu+\frac{1}{2}}}e^{-\frac{a^2}{8s}}M_{\mu+\frac{1}{2},\frac{\nu}{2}}(\frac{a^2}{4s})$	Re(μ + ν/2) > − 1 Re s > o
	20	$t^{\frac{\nu}{2}}J_{\nu}(at^{\frac{1}{2}})$	$(\frac{a}{2})^{\nu}\frac{e^{-\frac{a^2}{4s}}}{s^{\nu+1}}$	Re ν > − 1 Re s > o
	21	$t^{\frac{\nu}{2}-1}J_{\nu}(at^{\frac{1}{2}})$	$(\frac{2}{a})^{\nu}\gamma(\nu,\frac{a^2}{4s})$	Re ν > o Re s > o
	22	$t^{\frac{\nu}{2}+n}J_{\nu}(at^{\frac{1}{2}})$	$n!(\frac{a}{2})^{\nu}s^{-n-\nu-1}e^{-\frac{a^2}{4s}}L_n^{\nu}(\frac{a^2}{4s})$	Re(ν+n) > − 1 n = 0,1,2,... Re s > o
	23	$\frac{1}{t^{\frac{\nu}{2}}}J_{\nu}(at^{\frac{1}{2}})$	$\frac{2^{\nu}e^{i\nu\pi}s^{\nu-1}}{a^{\nu}\Gamma(\nu)}e^{-\frac{a^2}{4s}}\gamma\left(\nu,\frac{a^2}{4s}e^{-i\pi}\right)$	Re s > o
	24	$\sum_{n=0}^{\infty}J_{2\nu+2n+1}(t^{\frac{1}{2}})$	$\frac{\pi^{\frac{1}{2}}}{(2s)^{\frac{1}{2}}}e^{-\frac{1}{8s}}I_{\nu}(\frac{1}{8s})$	Re ν > − 3/2 Re s > o
	25	$\frac{t^{\frac{\nu}{2}-1}}{(t+1)^{\frac{\nu}{2}}}J_{\nu}[a(t^2+t)^{\frac{1}{2}}]$	$(\frac{2}{a})^{\nu}\gamma\left(\nu,\frac{(s^2+a^2)^{\frac{1}{2}}-s}{2}\right)$	Re ν > o Re s > |Im a|
	26	$\frac{t^{b-\frac{\nu}{2}-1}}{(t+1)^{\frac{\nu}{2}}}J_{\nu}[a(t^2+t)^{\frac{1}{2}}]$	$\frac{2^{\nu}}{a^{\nu}\Gamma(\nu-b+1)}\int_0^{\frac{(s^2+a^2)^{\frac{1}{2}}-s}{2}}e^{-u}u^{b-1}(\frac{a^2}{4}-su-u^2)^{\nu-b}\,du$	Re(ν+1) > Re b > o Re s > |Im a|
	27	$(t^2+bt)^{\frac{\nu}{2}}J_{\nu}[a(t^2+bt)^{\frac{1}{2}}]$	$\pi^{-\frac{1}{2}}(\frac{a}{2})^{\nu}\frac{b^{\nu+\frac{1}{2}}}{(s^2+a^2)^{\frac{\nu}{2}+\frac{1}{4}}}e^{\frac{bs}{2}}K_{\nu+\frac{1}{2}}\left[\frac{b(s^2+a^2)^{\frac{1}{2}}}{2}\right]$	Re ν > − 1 |arg b| < π Re s > |Im a|

10.2 (Contd.)

	$f(t)$	$g(s)$	
28	$\left(\frac{t}{t+b}\right)^{\frac{\nu}{2}} J_\nu[a(t^2+bt)^{\frac{1}{2}}]$	$\dfrac{a^\nu e^{\frac{b}{2}[s-(s^2+a^2)^{\frac{1}{2}}]}}{(s^2+a^2)^{\frac{1}{2}}[s+(s^2+a^2)^{\frac{1}{2}}]^\nu}$	$\mathrm{Re}\,\nu > -1$, $\lvert\arg b\rvert < \pi$, $\mathrm{Re}\,s > \lvert\mathrm{Im}\,a\rvert$
29	$(t^2+2it)^{\frac{\nu}{2}} J_\nu[a(t^2+2it)^{\frac{1}{2}}]$	$-\dfrac{i\pi^{\frac{1}{2}} a^\nu e^{is} H^{(2)}_{\nu+\frac{1}{2}}[(s^2+a^2)^{\frac{1}{2}}]}{2^{\frac{1}{2}}(s^2+a^2)^{\frac{\nu}{2}+\frac{1}{4}}}$	$\mathrm{Re}\,\nu > -1$, $\mathrm{Re}\,s > \lvert\mathrm{Im}\,a\rvert$
30	$(t^2+2it)^{b-\frac{\nu}{2}} J_\nu[a(t^2+2it)^{\frac{1}{2}}]$	$\dfrac{2^{b-\nu-\frac{1}{2}}\pi^{\frac{1}{2}} e^{is}\Gamma(b+1)}{i(s^2+a^2)^{\frac{b}{2}+\frac{1}{4}}\Gamma(\nu-b)} \cdot \sum_{n=0}^{\infty} \dfrac{\Gamma(\nu-b+n)}{2^n n!\Gamma(\nu+n+1)(s^2+a^2)^{\frac{n}{2}}} H^{(2)}_{b+n+\frac{1}{2}}[(s^2+a^2)^{\frac{1}{2}}]$	$\mathrm{Re}\,b > -1$, $\mathrm{Re}\,s > \lvert\mathrm{Im}\,a\rvert$
31	$t^{\nu-\frac{1}{2}}\left\{J_{2\mu}(at^{\frac{1}{2}})\cos[(\nu+\mu)\pi] - J_{-2\mu}(at^{\frac{1}{2}})\cos[(\nu-\mu)\pi]\right\}$	$-\frac{2}{a}\sin(2\mu\pi)s^{-\nu} e^{-\frac{a^2}{8s}} W_{\nu,\mu}\left(\frac{a^2}{4s}\right)$	$\mathrm{Re}(\nu\pm\mu) > -\frac{1}{2}$, $\mathrm{Re}\,s > 0$
32	$t^{\frac{1}{2}} J_\nu^2(at)$	$\dfrac{a\Gamma(2\nu+\frac{3}{2})}{2^{\nu+\frac{1}{2}} s^{\frac{1}{2}}(s^2+4a^2)^{\frac{1}{2}}} P^{-\nu}_{\frac{1}{4}}\left[\frac{(s^2+4a^2)^{\frac{1}{2}}}{s}\right] \cdot P^{-\nu}_{-\frac{1}{4}}\left[\frac{(s^2+4a^2)^{\frac{1}{2}}}{s}\right]$	$\mathrm{Re}\,\nu > -\frac{3}{4}$, $\mathrm{Re}\,s > 2\lvert\mathrm{Im}\,a\rvert$
33	$\frac{1}{t^{\frac{1}{2}}} J_\nu^2(at)$	$\dfrac{\Gamma(2\nu+\frac{1}{2})}{2^{\nu+\frac{1}{2}} s^{\frac{1}{2}}}\left\{P^{-\nu}_{-\frac{1}{4}}\left[\frac{(s^2+4a^2)^{\frac{1}{2}}}{s}\right]\right\}^2$	$\mathrm{Re}\,\nu > -\frac{1}{4}$, $\mathrm{Re}\,s > 2\lvert\mathrm{Im}\,a\rvert$
34	$t^{2\nu} J_\nu^2(at)$	$\dfrac{2^{4\nu} a^{2\nu}\Gamma(\nu+\frac{1}{2})\Gamma(2\nu+\frac{1}{2})}{\pi\Gamma(\nu+1)s^{4\nu+1}} {}_2F_1\left[\nu+\frac{1}{2}; 2\nu+\frac{1}{2}; \nu+1; -\frac{4a^2}{s^2}\right]$	$\mathrm{Re}\,\nu > -\frac{1}{4}$, $\mathrm{Re}\,s > 2\lvert\mathrm{Im}\,a\rvert$
35	$J_\nu^2(at^{\frac{1}{2}})$	$\frac{1}{s} e^{-\frac{a^2}{2s}} I_\nu\left(\frac{a^2}{2s}\right)$	$\mathrm{Re}\,\nu > -1$, $\mathrm{Re}\,s > 0$
36	$\frac{1}{t} J_\nu^2(at^{\frac{1}{2}})$	$\nu^{-1} e^{-\frac{2a}{s}}\left[I_\nu\left(\frac{a^2}{2s}\right) + 2\sum_{n=1}^{\infty} I_{\nu+n}\left(\frac{a^2}{2s}\right)\right]$	$\mathrm{Re}\,\nu > 0$, $\mathrm{Re}\,s > 0$

10.2 (Contd.)

	$f(t)$	$g(s)$	
37	$t^{\frac{1}{2}} J_\nu(at)J_{-\nu}(at)$	$\dfrac{a\pi^{\frac{1}{2}}}{s^{\frac{1}{2}}(s^2+4a^2)^{\frac{1}{2}}}\left\{(\nu+\frac{1}{4})P^{\nu}_{-\frac{1}{4}}\left[\frac{(s^2+4a^2)^{\frac{1}{2}}}{s}\right] \cdot P^{-\nu}_{\frac{1}{4}}\left[\frac{(s^2+4a^2)^{\frac{1}{2}}}{s}\right] - (\nu-\frac{1}{4})P^{\nu}_{\frac{1}{4}}\left[\frac{(s^2+4a^2)^{\frac{1}{2}}}{s}\right] \cdot P^{-\nu}_{-\frac{1}{4}}\left[\frac{(s^2+4a^2)^{\frac{1}{2}}}{s}\right]\right\}$	$\mathrm{Re}\,s > 2\lvert\mathrm{Im}\,a\rvert$
38	$\frac{1}{t^{\frac{1}{2}}} J_\nu(at)J_{-\nu}(at)$	$\left(\frac{\pi}{2s}\right)^{\frac{1}{2}} P^{\nu}_{-\frac{1}{4}}\left[\frac{(s^2+4a^2)^{\frac{1}{2}}}{s}\right] P^{-\nu}_{-\frac{1}{4}}\left[\frac{(s^2+4a^2)^{\frac{1}{2}}}{s}\right]$	$\mathrm{Re}\,s > 2\lvert\mathrm{Im}\,a\rvert$
39	$t^{\frac{1}{2}} J_\nu(at)J_{\nu+1}(at)$	$\dfrac{\Gamma(2\nu+\frac{5}{2})}{2^{\nu+\frac{3}{2}} s^{\frac{1}{2}}(s^2+4a^2)^{\frac{1}{2}}} P^{-\nu}_{-\frac{1}{4}}\left[\frac{(s^2+4a^2)^{\frac{1}{2}}}{s}\right] P^{-\nu-1}_{-\frac{1}{4}}\left[\frac{(s^2+4a^2)^{\frac{1}{2}}}{s}\right]$	$\mathrm{Re}\,\nu > -\frac{5}{4}$, $\mathrm{Re}\,s > 2\lvert\mathrm{Im}\,a\rvert$
40	$t^{\mu+\nu} J_\mu(at)J_\nu(at)$	$\dfrac{2(4a)^{\mu+\nu}\Gamma(\mu+\nu+\frac{1}{2})}{\pi^{\frac{3}{2}}}\displaystyle\int_0^{\frac{\pi}{2}} \frac{\cos^{\mu+\nu}\theta\cos(\mu-\nu)\theta\, d\theta}{(s^2+4a^2\cos^2\theta)^{\mu+\nu+\frac{1}{2}}}$	$\mathrm{Re}(\mu+\nu) > -\frac{1}{2}$, $\mathrm{Re}\,s > \lvert\mathrm{Im}\,a\rvert$
41	$t^{\mu-\nu} J_\nu(at)J_\mu(bt)$	$\dfrac{a^\nu b^\mu\Gamma(2\mu+1)}{\pi^{\frac{1}{2}} 2^{\mu+\nu}\Gamma(\nu+\frac{1}{2})}\displaystyle\int_{-1}^{1}\frac{(1-u^2)^{\nu-\frac{1}{2}}du}{[b^2+(s+iau)^2]^{\mu+\frac{1}{2}}}$ $= \dfrac{a^\nu b^\mu\Gamma(2\mu+1)}{\pi^{\frac{1}{2}} 2^{\mu+\nu}\Gamma(\nu+\frac{1}{2})}\displaystyle\int_0^{\pi}\frac{\sin^{2\nu}\theta\, d\theta}{[b^2+(s+ia\cos\theta)^2]^{\mu+\frac{1}{2}}}$	$\mathrm{Re}\,\mu > -\frac{1}{2}$, $\mathrm{Re}\,s > \lvert\mathrm{Im}\,a\rvert + \lvert\mathrm{Im}\,b\rvert$
42	$t^{\mu-2\nu-1} J_\nu(at)J_\nu(bt)$	$\dfrac{(ab)^\nu\Gamma(\mu)}{\pi\Gamma(2\nu+1)s^\mu}\displaystyle\int_0^{\pi} {}_2F_1\left[\frac{\mu}{2}, \frac{\mu+1}{2}; \nu+1; -\frac{a^2-2ab\cos\theta+b^2}{s^2}\right] \cdot \sin^{2\nu}\theta\, d\theta$	$\mathrm{Re}\,\mu > 0$, $\mathrm{Re}\,s > \lvert\mathrm{Im}\,a\rvert + \lvert\mathrm{Im}\,b\rvert$
43	$t^{2(\nu+1)} J_\nu(t)J_{-\nu-1}(t)$	$\dfrac{2^{2\nu+1}}{\pi}\displaystyle\sum_{n=0}^{\infty}\frac{(-4)^n\Gamma(n+\frac{1}{2})\Gamma(\nu+n+\frac{3}{2})}{n!\Gamma(n-\nu)s^{2(\nu+n+1)}}$	$\mathrm{Re}\,s > 0$
44	$J_\nu(at^{\frac{1}{2}})J_\nu(bt^{\frac{1}{2}})$	$\frac{1}{s} e^{-\frac{a^2+b^2}{4s}} I_\nu\left(\frac{ab}{2s}\right)$	$\mathrm{Re}\,\nu > -1$, $\mathrm{Re}\,s > 0$

		$f(t)$	$g(s)$	
10.2 (Contd)	45	$\frac{1}{t^{\frac12}} J_\nu(at^{\frac12}e^{\frac{i\pi}{4}})J_\nu(at^{\frac12}e^{-\frac{i\pi}{4}})$	$\frac{\Gamma(\nu+\frac12)}{[\Gamma(\nu+1)]^2}\,\frac{s^{\frac12}}{2^{\nu-1}a^2}M_{\frac14,\frac{\nu}{2}}(\frac{a^2}{2s})\,M_{-\frac14,\frac{\nu}{2}}(\frac{a^2}{2s})$	$\mathrm{Re}\,\nu > -\frac12$ $\mathrm{Re}\,s > 0$
	46	$J_\nu[(-it)^{\frac12}]J_\nu[(it)^{\frac12}]$	$\frac{I_\nu(\frac{1}{2s})}{s}$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\,s > 0$
	47	$\frac{1}{t^{\frac12}} J_\nu(t^{\frac12})J_{1-\nu}(t^{\frac12}) - \frac{\sin(\nu\pi)}{2\nu(1-\nu)\pi t}$	$\frac12\sum_{n=1}^{\infty}\frac{(2n+1)!}{n!(n+1)!\Gamma(\nu+n+1)\Gamma(2-\nu+n)(4s)^n}$	$\mathrm{Re}\,s > 0$
	48	$t^\mu J_\nu(at^{\frac12})J_\nu(bt^{\frac12})$	$\frac{(ab)^\nu\Gamma(\mu+\nu+1)}{\pi\Gamma(2\nu+1)s^{\mu+\nu+1}}\int_0^\pi e^{-\frac{a^2-2ab\cos\theta+b^2}{4s}}\cdot$ $\cdot\ {}_1F_1\left[-\mu;\nu+1;\frac{a^2-2ab\cos\theta+b^2}{4s}\right]\sin^{2\nu}\theta\,d\theta$	$\mathrm{Re}\,\nu > -\frac12$ $\mathrm{Re}(\mu+\nu) > -1$ $\mathrm{Re}\,s > 0$
	49	$t^{b-1}J_{2\mu}(at^{\frac12})J_{2\nu}(at^{\frac12})$	$\frac{\Gamma(b+\mu+\nu)a^{2\mu+2\nu}}{2^{2\mu+2\nu-1}\Gamma(2\mu+1)\Gamma(2\nu+1)}s^{-b-\mu-\nu}\cdot$ $\cdot\ {}_3F_3\left[\begin{matrix}\mu+\nu+\frac12,\mu+\nu+1,b+\mu+\nu; & -\frac{a^2}{s}\\ 2\mu+1,2\nu+1,2\mu+2\nu+1; & \end{matrix}\right]$	$\mathrm{Re}(b+\mu+\nu) > 0$ $\mathrm{Re}\,s > 0$
	50	$J_\nu(t)J_{2\nu}(at^{\frac12})$	$\frac{e^{-\frac{a^2s}{4(s^2+1)}}}{(s^2+1)^{\frac12}}J_\nu\left[\frac{a^2}{4(s^2+1)}\right]$	$\mathrm{Re}\,\nu > -\frac12$ $\mathrm{Re}\,s > 0$
	51	$t^\mu\prod_{r=1}^{n}J_{\nu_r}(a_rt)$	$\frac{\Gamma(\mu+\nu+1)\prod_{r=1}^{n}a_r^{\nu_r}}{2^\nu\prod_{r=1}^{n}[\Gamma(\nu_r+1)](s+ia)^{\mu+\nu+1}}\cdot$ $\cdot\ F_A\left(\mu+\nu+1;\nu_1+\frac12,\dots,\nu_n+\frac12;2\nu_1+1,\dots,2\nu_n+1;\frac{2a_1i}{s+ia},\dots,\frac{2a_ni}{s+ia}\right)$ If n=2 replace F_A by F_2	$n=1,2,3,\dots$ $\mathrm{Re}(\mu+\nu) > -1$ $\nu=\sum_{r=1}^{n}\nu_r$ $a=\sum_{r=1}^{n}a_r$ $\mathrm{Re}(s\pm ia_1\pm\dots\pm ia_n) > 0$
	52	$t^\mu\prod_{r=1}^{n}J_{\nu_r}(a_rt^{\frac12})$	$\frac{\Gamma(\mu+\nu+1)}{s^{\mu+\nu+1}}\prod_{r=1}^{n}\left[\frac{a_r^{\nu_r}}{2^{\nu_r}\Gamma(\nu_r+1)}\right]\cdot$ $\cdot\ \Phi_2(\mu+\nu+1;\nu_1+1,\dots,\nu_n+1;\frac{a_1^2}{4s},\dots,\frac{a_n^2}{4s})$	$n=1,2,3,\dots$ $\mathrm{Re}(\mu+\nu) > -1$ $\nu=\frac12\sum_{r=1}^{n}\nu_r$ $\mathrm{Re}\,s > 0$

		$f(t)$	$g(s)$	
10.2 (Contd)	53	$\frac{1}{t^{\frac12}}Y_0(t^{\frac12})$	$-\frac{e^{-\frac{1}{8s}}K_0(\frac{1}{8s})}{(\pi s)^{\frac12}}$	$\mathrm{Re}\,s > 0$
	54	$t^\mu Y_\nu(at)$	$(s^2+a^2)^{-\frac{\mu+1}{2}}\Big\{\Gamma(\mu+\nu+1)\cot(\nu\pi)\cdot$ $P_\mu^{-\nu}\left[\left(\frac{s^2}{s^2+a^2}\right)^{\frac12}\right]-\Gamma(\mu-\nu+1)\ \mathrm{cosec}(\nu\pi)P_\mu^\nu\left[\left(\frac{s^2}{s^2+a^2}\right)^{\frac12}\right]\Big\}$	$\mathrm{Re}(\mu\pm\nu) > -1$ $\mathrm{Re}\,s > \lvert\mathrm{Im}\,a\rvert$
	55	$\frac{1}{t^{\frac12}}Y_\nu(at^{\frac12})$	$-(\frac{\pi}{s})^{\frac12}e^{-\frac{a^2}{8s}}\left[\tan(\frac{\nu\pi}{2})I_{\frac{\nu}{2}}\left(\frac{a^2}{8s}\right)+\frac{\sec(\frac{\nu\pi}{2})}{\pi}K_{\frac{\nu}{2}}\left(\frac{a^2}{8s}\right)\right]$	$\lvert\mathrm{Re}\,\nu\rvert < 1$ $\mathrm{Re}\,s > 0$
	56	$t^\mu Y_\nu(at^{\frac12})$	$\frac{2e^{-\frac{a^2}{8s}}}{as^{\mu+\frac12}}\Big\{\frac{\tan[(\mu-\frac{\nu-1}{2})\pi]\Gamma(\mu+\frac{\nu}{2}+1)}{\Gamma(\nu+1)}M_{\mu+\frac12,\frac{\nu}{2}}\left(\frac{a^2}{4s}\right)$ $-\sec[(\mu-\frac{\nu-1}{2})\pi]W_{\mu+\frac12,\frac{\nu}{2}}\left(\frac{a^2}{4s}\right)\Big\}$	$\mathrm{Re}(\mu\pm\frac{\nu}{2}) > -1$ $\mathrm{Re}\,s > 0$
	57	$(\log a)J_0[a(t^2+bt)^{\frac12}]$ $-\frac{\pi}{2}Y_0[a(t^2+bt^{\frac12})]$	$\frac{e^{\frac{b}{2}[s-(s^2+a^2)^{\frac12}]}\log[s+(s^2+a^2)^{\frac12}]}{(s^2+a^2)^{\frac12}}$	$\mathrm{Re}\,s > \lvert\mathrm{Im}\,a\rvert$
	58	$\frac{1}{t^{\frac12}}[\sin(\frac{\nu\pi}{2})J_\nu(at^{\frac12})+\cos(\frac{\nu\pi}{2})Y_\nu(at^{\frac12})]$	$-\frac{e^{-\frac{a^2}{8s}}}{(\pi s)^{\frac12}}K_{\frac{\nu}{2}}\left(\frac{a^2}{8s}\right)$	$\lvert\mathrm{Re}\,\nu\rvert < 1$ $\mathrm{Re}\,s > 0$
	59	$t^\mu\Big\{\sin[(\frac{\nu-1}{2}-\mu)\pi]J_\nu(at^{\frac12})$ $+\cos[(\frac{\nu-1}{2}-\mu)\pi]Y_\nu(at^{\frac12})\Big\}$	$-\frac{2}{as^{\mu+\frac12}}e^{\frac{a^2}{8s}}W_{\mu+\frac12,\frac{\nu}{2}}\left(\frac{a^2}{4s}\right)$	$\mathrm{Re}(\mu\pm\frac{\nu}{2}) > -1$ $\mathrm{Re}\,s > 0$
	60	$\frac{[at^{\frac12}J_1(t^{\frac12})+bJ_0(t^{\frac12})]^2}{t}$ $+\frac{1}{t[at^{\frac12}Y_1(t^{\frac12})+bY_0(t^{\frac12})]^2}$	$2\,I(a,b;s)$	$\mathrm{Re}\,s > 0$
	61	$t^\nu\int_\infty^{(at)^{\frac12}}u^{-\nu-1}J_\nu(2u)\,du$	$\frac{Ei(-\frac{a}{s})}{2s^{\nu+1}}$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\,a > 0$ $\mathrm{Re}\,s > 0$

		$f(t)$	$g(s)$	
10.2 Contd.)	62	$t^{\frac{\nu}{2}-\mu-1}\int_{at}^{\infty} u^{\mu}J_{\nu}(2u^{\frac{1}{2}})du$	$s^{\mu-\frac{\nu}{2}}\Gamma(\mu+1+\frac{\nu}{2},\frac{a}{s})$	$\mathrm{Re}\,\mu<\frac{3}{4}$ $\mathrm{Re}(\mu-\frac{\nu}{2})>0$ $\mathrm{Re}\,s>0$
	63	$t^{\frac{\nu}{2}-\mu-1}\int_{0}^{at} u^{\mu}J_{\nu}(2u^{\frac{1}{2}})du$	$s^{\mu-\frac{\nu}{2}}\gamma(\mu+1+\frac{\nu}{2},\frac{a}{s})$	$\mathrm{Re}(\mu+\frac{\nu}{2})>-1$ $\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\,s>0$
	64	$t^{\nu}\int_{\infty}^{at} u^{-\frac{\nu}{2}-1}J_{\nu}[2(u-at)^{\frac{1}{2}}]du$	$\frac{e^{\frac{a}{s}}\mathrm{Ei}(-\frac{a}{s})}{s^{\nu+1}}$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\,s>0$
	65	$\int_{0}^{t} J_0[2(tu-u^2)^{\frac{1}{2}}]J_0(2a^{\frac{1}{2}}u^{\frac{1}{2}})du$	$\frac{e^{-\frac{as}{s^2+1}}}{s^2+1}$	$\mathrm{Re}\,s>0$
10.2.1	1	$t^{\frac{1}{2}}J_{\frac{1}{4}}(at^2)$	$\frac{\pi^{\frac{1}{2}}s^{\frac{1}{2}}}{4a}\left[H_{-\frac{1}{4}}\left(\frac{s^2}{4a}\right)-Y_{-\frac{1}{4}}\left(\frac{s^2}{4a}\right)\right]$	$a>0$ $\mathrm{Re}\,s>0$
	2	$t^{\frac{1}{2}}J_{-\frac{1}{4}}(at^2)$	$\frac{\pi^{\frac{1}{2}}s^{\frac{1}{2}}}{4a}\left[H_{\frac{1}{4}}\left(\frac{s^2}{4a}\right)-Y_{\frac{1}{4}}\left(\frac{s^2}{4a}\right)\right]$	$a>0$ $\mathrm{Re}\,s>0$
	3	$t^{\frac{3}{2}}J_{-\frac{1}{4}}(at^2)$	$-\frac{\pi^{\frac{1}{2}}s^{\frac{3}{2}}}{8a^2}\left[H_{-\frac{3}{4}}\left(\frac{s^2}{4a}\right)-Y_{-\frac{3}{4}}\left(\frac{s^2}{4a}\right)\right]$	$a>0$ $\mathrm{Re}\,s>0$
	4	$t^{\frac{3}{2}}J_{\frac{3}{4}}(at^2)$	$\frac{\pi^{\frac{1}{2}}s^{\frac{3}{2}}}{8a^2}\left[H_{-\frac{1}{4}}\left(\frac{s^2}{4a}\right)-Y_{-\frac{1}{4}}\left(\frac{s^2}{4a}\right)\right]$	$a>0$ $\mathrm{Re}\,s>0$
	5	$t^{\frac{1}{2}}J_{\frac{1}{8}}(at^2)J_{-\frac{1}{8}}(at^2)$	$\frac{\pi^{\frac{1}{2}}s^{\frac{1}{2}}}{2^{\frac{5}{2}}\cdot 16a\cos(\frac{\pi}{8})}H^{(1)}_{\frac{1}{8}}\left(\frac{s^2}{16a}\right)H^{(2)}_{\frac{1}{8}}\left(\frac{s^2}{16a}\right)$	$a>0$ $\mathrm{Re}\,s>0$
	6	$\frac{t+b}{(t^2+2bt)^{\frac{1}{2}}}J_1[a(t^2+2bt)^{\frac{1}{2}}]$	$\frac{1}{a}-\frac{s\,e^{b[s-(s^2+a^2)^{\frac{1}{2}}]}}{a(s^2+a^2)^{\frac{1}{2}}}$	$\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$
	7	$t^{\frac{1}{2}}J_{\nu+\frac{1}{8}}(at^2)J_{\nu-\frac{1}{8}}(at^2)$	$\frac{2^{\frac{1}{2}}\Gamma(\nu+\frac{3}{8})\Gamma(\nu+\frac{5}{8})}{(\pi s)^{\frac{1}{2}}}W_{-\nu,\frac{1}{8}}\left(\frac{e^{\frac{\pi i}{2}}s^2}{8a}\right)W_{-\nu,\frac{1}{8}}\left(\frac{e^{-\frac{\pi i}{2}}s^2}{8a}\right)$	$\mathrm{Re}\,\nu>-\frac{3}{8}$ $a>0$ $\mathrm{Re}\,s>0$

		$f(t)$	$g(s)$	
10.3	1	$e^{-at}J_0(bt)$	$\frac{1}{[(s+a)^2+b^2]^{\frac{1}{2}}}$	$\mathrm{Re}\,s>-\mathrm{Re}\,a+\lvert\mathrm{Im}\,b\rvert$
	2	$e^{ia(1-e^{-t})}J_{\nu}(ae^{-t})$	$\frac{J_{\nu}(a)}{\nu+s}+2\sum_{n=1}^{\infty}i^n\frac{(\nu-s+1)_{n-1}}{(\nu+s)_{n+1}}(\nu+n)J_{\nu+n}(a)$	$\mathrm{Re}\,s>-\mathrm{Re}\,\nu$
	3	$(1-e^{-t})^{\frac{\nu}{2}}J_{\nu}[a(1-e^{-t})^{\frac{1}{2}}]$	$\Gamma(s)(\frac{2}{a})^sJ_{\nu+s}(a)$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\,s>0$
	4	$\frac{J_{\nu}[a(1-e^{-t})^{\frac{1}{2}}]}{(1-e^{-t})^{\frac{\nu}{2}}}$	$\frac{s_{\nu+s-1,s-\nu}(a)}{2^{\nu}a^s\Gamma(\nu)}$	$\mathrm{Re}\,s>0$
	5	$(e^t-1)^{\mu}J_{2\nu}[2a(e^t-1)^{\frac{1}{2}}]$	$\frac{a^{2\nu}B(\mu+\nu+1,s-\mu-\nu)}{\Gamma(2\nu+1)}{}_1F_2\left[{\mu+\nu+1;\atop \mu+\nu+1-s,2\nu+1;}a^2\right]$ $+\frac{a^{2s-2\mu}\Gamma(\mu+\nu-s)}{\Gamma(\nu-\mu+s+1)}{}_1F_2\left[{s+1;\atop s+1+\nu-\mu,s+1-\mu-\nu;}a^2\right]$	$a>0$ $\mathrm{Re}(\mu+\nu)>-1$ $\mathrm{Re}\,s>\mathrm{Re}\,\mu-\frac{7}{4}$
	6	$(e^t-1)^{\frac{\nu}{2}}J_{\nu}[2a(e^t-1)^{\frac{1}{2}}]$	$\frac{2a^s}{\Gamma(s+1)}K_{\nu-s}(2a)$	$a>0$ $\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\,s>\frac{1}{2}\mathrm{Re}(\nu-\frac{3}{2})$
	7	$J_{\mu}(ae^{-t})J_{\nu}[a(1-e^{-t})]$	$(\frac{2}{a})^s\sum_{n=0}^{\infty}\frac{(-1)^n\Gamma(s+n)}{(\mu+n)n!B(s,\mu+n)}J_{\mu+\nu+s+2n}(a)$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\,s>-\mathrm{Re}\,\mu$
10.3.2	1	$e^{-at}J_0[(b-a^2t)^{\frac{1}{2}}]$	$\frac{1}{(s^2+2as+b)^{\frac{1}{2}}}$	$\mathrm{Re}\,s>\lvert\mathrm{Im}(b-a^2)^{\frac{1}{2}}\rvert-\mathrm{Re}\,a$
10.3.2.1	1	$\frac{1}{t^{\frac{1}{2}}}\int_0^{\infty}u^{1+\frac{\nu}{2}}e^{-\frac{u^2}{4t}}J_{\nu}(au^{\frac{1}{2}})du$	$\frac{\pi^{\frac{1}{2}}a^{\nu}e^{-\frac{a^2}{4s^{\frac{1}{2}}}}}{2^{\nu-1}s^{\frac{\nu+1}{2}}}$	$\mathrm{Re}\,a^2>0$ $\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\,s>0$
	2	$\frac{1}{t^{\frac{1}{2}}}\int_0^{\infty}ue^{-\frac{u^2}{4t}}J_0(au^{\frac{1}{2}})du$	$2(\frac{\pi}{s})^{\frac{1}{2}}e^{-\frac{a^2}{4s^{\frac{1}{2}}}}$	$\mathrm{Re}\,a^2>0$ $\mathrm{Re}\,s>0$
10.5	1	$\frac{\sin(at)J_0(bt)}{t}$	$\frac{1}{2}\int_{-a}^{a}\frac{du}{[b^2+(s+iu)^2]^{\frac{1}{2}}}$	$\mathrm{Re}\,s>\mathrm{Max}\,\lvert\mathrm{Im}\,a\rvert,\lvert\mathrm{Im}\,b\rvert$

		$f(t)$	$g(s)$	
10.5 (Contd.)	2	$t[J_1(at)\log a - \frac{\pi}{2}Y_1(at)] - \frac{\cos(at)}{a}$	$\frac{a\log[s+(s^2+a^2)^{\frac12}]}{(s^2+a^2)^{\frac32}}$	Re s > |Im a|
	3	$t[J_0(at)\log a - \frac{\pi}{2}Y_0(at)] + \frac{\sin(at)}{a}$	$\frac{s}{(s^2+a^2)^{\frac32}}\log[s+(s^2+a^2)^{\frac12}]$	Re s > |Im a|
	4	$\int_0^t J_0(au)\sin u\,du$	$-\frac{1}{s}\left[\frac{[(s^2+a^2-1)^2+4s^2]^{\frac12}-s^2-a^2+1}{2(s^2+a^2-1)^2+8s^2}\right]^{\frac12}$	Re s > |Im a|
	5	$\int_0^t J_0(au)\cos u\,du$	$\frac{1}{s}\left[\frac{[(s^2+a^2-1)^2+4s^2]^{\frac12}+s^2+a^2-1}{2(s^2+a^2-1)^2+8s^2}\right]^{\frac12}$	Re s > |Im a|
10.5.2	1	$t^\mu \sin(at)J_\mu(at)$	$\frac{\Gamma(\mu+1)a^{\mu+1}}{2^{\frac12}\pi}\int_0^{\frac{\pi}{2}}\frac{\cos^{\mu+\frac12}\theta\cos[(\mu-\frac12)\theta]d\theta}{(\frac{s^2}{4}+a^2\cos^2\theta)^{\mu+1}}$	a > o Re μ > - 1 Re s > o
	2	$t^{\mu-1}\cos(at)J_\mu(at)$	$\frac{\Gamma(\mu)a^\mu}{2^{\frac12}\pi}\int_0^{\frac{\pi}{2}}\frac{\cos^{\mu-\frac12}\theta\cos[(\mu+\frac12)\theta]d\theta}{(\frac{s^2}{4}+a^2\cos^2\theta)^{\mu}}$	a > o Re μ > o Re s > o
10.5.3	1	$\sin[a(1-e^{-t})]J_\nu(ae^{-t})$	$2\sum_{n=0}^{\infty}\frac{(-1)^n(\nu-s+1)_{2n}}{(\nu+s)_{2n+2}}(\nu+2n-1)J_{\nu+2n+1}(a)$	Re s > - Re ν
	2	$\cos[a(1-e^{-t})]J_\nu(ae^{-t})$	$\frac{J_\nu(a)}{\nu+s}+2\sum_{n=0}^{\infty}(-1)^n\frac{(\nu-s+1)_{2n-1}}{(\nu+s)_{2n+1}}(\nu+2n)J_{\nu+2n}(a)$	Re s > - Re ν
0.7	1	$\frac{\sinh(at)}{t}J_0(bt)$	$\frac12\int_{-a}^{a}\frac{du}{[b^2+(s-u)^2]^{\frac12}}$	Re s > Max |Im b|, |Re a|
	2	$J_0(a\sinh t)$	$K_{\frac s2}(\frac a2)I_{\frac s2}(\frac a2)$	Re a > o Re s > $-\frac12$
	3	$J_\nu(a\sinh t)$	$I_{\frac{\nu+s}{2}}(\frac a2)K_{\frac{\nu-s}{2}}(\frac a2)$	Re ν > - 1 Re a > o Re s > $-\frac12$

		$f(t)$	$g(s)$	
10.7 (Contd.)	4	$\operatorname{cosech} t\, J_\nu(a\operatorname{cosech} t)$	$\frac{\Gamma(\frac{s+\nu+1}{2})}{a\Gamma(\nu+1)}W_{-\frac s2,\frac\nu2}(a)M_{\frac s2,\frac\nu2}(a)$	a > o Re s > - Re(ν+1)
10.7.3	1	$\operatorname{cosech}\frac t2\, e^{\frac{a-b}{2}\coth\frac t2}J_\nu[(ab)^{\frac12}\operatorname{cosech}\frac t2]$	$\frac{2\Gamma(s+\frac{\nu+1}{2})}{(ab)^{\frac12}\Gamma(\nu+1)}M_{s,\frac\nu2}(a)W_{-s,\frac\nu2}(b)$	Re a > o Re b > o Re s > - Re $\frac{\nu-1}{2}$
10.9.2	1	$t^{\frac\nu2}L_n^\nu(t)J_\nu(at^{\frac12})$	$(\frac a2)^\nu e^{-\frac{a^2}{4s}}\frac{(s-1)^n}{s^{\nu+n+1}}L_n^\nu\left[\frac{a^2}{4s(1-s)}\right]$	n = 0,1,2,... Re ν > - 1 Re s > o
10.9.3.2	1	$t^{\frac\nu2}\int_0^\infty e^{-bu}J_\nu(2t^{\frac12}u^{\frac12})L_n^{(a)}(u)u^{a-\frac\nu2}du$	$\frac{\Gamma(n+a+1)[1+(b-1)s]^n}{n!s^{\nu-a}(1+bs)^{n+a+1}}$	Re ν > - 1 Re a > - 1 Re s > Max o, - Re $\frac1b$
11	1	$H_0^{(1)}(at)$	$\frac{1-\frac{2i}{\pi}\sinh^{-1}(\frac sa)}{(s^2+a^2)^{\frac12}} = \frac{1-\frac{2i}{\pi}\log\frac{s+(s^2+a^2)^{\frac12}}{a}}{(s^2+a^2)^{\frac12}}$	Re s > |Im a|
	2	$tH_0^{(1)}(at)$	$\frac{s}{(s^2+a^2)^{\frac32}}\left(1-\frac{2i}{\pi}\log\frac{s+(s^2+a^2)^{\frac12}}{a}\right)+\frac{2i}{\pi(s^2+a^2)}$	Re s > |Im a|
	3	$tH_1^{(1)}(at)$	$\frac{a}{(s^2+a^2)^{\frac32}}\left(1-\frac{2i}{\pi}\log\frac{s+(s^2+a^2)^{\frac12}}{a}\right)-\frac{2is}{\pi a(s^2+a^2)}$	Re s > |Im a|
	4	$H_\nu^{(1)}(at)$	$\frac{i\operatorname{cosec}(\nu\pi)}{(s^2+a^2)^{\frac12}}\left\{\frac{e^{-i\nu\pi}a^\nu}{[s+(s^2+a^2)^{\frac12}]^\nu}-\frac{[s+(s^2+a^2)^{\frac12}]^\nu}{a^\nu}\right\}$	|Re ν| < 1 Re s > |Im a|
	5	$\frac1t H_\nu^{(1)}(\frac at)$	$2H_\nu^{(1)}[(2as)^{\frac12}]K_\nu[(2as)^{\frac12}]$	a > o Re s > o
	6	$H_0^{(2)}(at)$	$\frac{1+\frac{2i}{\pi}\sinh^{-1}(\frac sa)}{(s^2+a^2)^{\frac12}} = \frac{1+\frac{2i}{\pi}\log\frac{s+(s^2+a^2)^{\frac12}}{a}}{(s^2+a^2)^{\frac12}}$	Re s > |Im a|

		f(t)	g(s)	
11 (Contd.)	7	$tH_0^{(2)}(at)$	$\frac{a}{(s^2+a^2)^{\frac{3}{2}}}\left(1+\frac{2i}{\pi}\log\frac{s+(s^2+a^2)^{\frac{1}{2}}}{a}\right)-\frac{2i}{\pi(s^2+a^2)}$	Re s > |Im a|
	8	$tH_1^{(2)}(at)$	$\frac{a}{(s^2+a^2)^{\frac{3}{2}}}\left(1+\frac{2i}{\pi}\log\frac{s+(s^2+a^2)^{\frac{1}{2}}}{a}\right)+\frac{2is}{\pi a(s^2+a^2)}$	Re s > |Im a|
	9	$H_\nu^{(2)}(at)$	$\frac{i\,\mathrm{cosec}(\nu\pi)}{(s^2+a^2)^{\frac{1}{2}}}\left\{\frac{[s+(s^2+a^2)^{\frac{1}{2}}]^\nu}{a^\nu}-\frac{a^\nu e^{i\nu\pi}}{[s+(s^2+a^2)^{\frac{1}{2}}]^\nu}\right\}$	|Re ν| < 1 Re s > |Im a|
	10	$\frac{1}{t}H_\nu^{(2)}(\frac{a}{t})$	$2H_\nu^{(2)}[(2as)^{\frac{1}{2}}]K_\nu[(2as)^{\frac{1}{2}}]$	a > o Re s > o
11.2	1	$t^\nu H_1^{(1)}(at^{\frac{1}{2}})$	$\frac{\Gamma(\nu+\frac{3}{2})e^{-\frac{a^2}{8s}}}{is^{\nu+\frac{1}{2}}\sin[(\nu+\frac{1}{2})\pi]}k_{-2\nu-1}\left(\frac{a^2e^{-i\pi}}{8s}\right)$	Re ν > $-\frac{1}{2}$ Re s > o
	2	$\frac{1}{t^{\frac{1}{2}}}H_\nu^{(1)}(at^{\frac{1}{2}})$	$(\frac{\pi}{s})^{\frac{1}{2}}\sec(\frac{\nu\pi}{2})e^{-\frac{a^2}{8s}}[e^{-\frac{i\nu\pi}{2}}I_{\frac{\nu}{2}}(\frac{a^2}{8s})-\frac{i}{\pi}K_{\frac{\nu}{2}}(\frac{a^2}{8s})]$	|Re ν| < 1 Re s > o
	3	$t^\mu H_\nu^{(1)}(at^{\frac{1}{2}})$	$\frac{2\Gamma(\mu+\frac{\nu}{2}+1)\Gamma(\mu-\frac{\nu}{2}+1)}{\pi as e^{\frac{\nu\pi i}{2}+\frac{a^2}{8s}}s^{\mu+\frac{1}{2}}}W_{-\mu-\frac{1}{2},\frac{\nu}{2}}\left(\frac{a^2e^{-i\pi}}{4s}\right)$	Re$(\mu\pm\frac{\nu}{2}) > -1$ Re s > o
	4	$\frac{1}{t^{\frac{\nu}{2}}}H_\nu^{(1)}(at^{\frac{1}{2}})$	$\frac{2^\nu s^{\nu-1}e^{-\frac{a^2}{4s}}}{\pi ia^\nu}\Gamma(1-\nu)\Gamma(\nu,\frac{e^{i\pi}a^2}{4s})$	Re ν < 1 Re s > o
	5	$t^\nu H_1^{(2)}(at^{\frac{1}{2}})$	$\frac{i\Gamma(\nu+\frac{3}{2})}{s^{\nu+\frac{1}{2}}\cos(\nu\pi)}e^{-\frac{a^2}{8s}}k_{-2\nu-1}\left(\frac{a^2e^{i\pi}}{8s}\right)$	Re ν > $-\frac{1}{2}$ Re s > o
	6	$\frac{1}{t^{\frac{1}{2}}}H_\nu^{(2)}(at^{\frac{1}{2}})$	$(\frac{\pi}{s})^{\frac{1}{2}}e^{-\frac{a^2}{8s}}\sec(\frac{\nu\pi}{2})[e^{\frac{i\nu\pi}{2}}I_{\frac{\nu}{2}}(\frac{a^2}{8s})+\frac{i}{\pi}K_{\frac{\nu}{2}}(\frac{a^2}{8s})]$	|Re ν| < 1 Re s > o
	7	$t^\mu H_\nu^{(2)}(at^{\frac{1}{2}})$	$\frac{2\Gamma(\mu+\frac{\nu}{2}+1)\Gamma(\mu-\frac{\nu}{2}+1)}{\pi as e^{-\frac{\nu\pi i}{2}+\frac{a^2}{8s}}s^{\mu+\frac{1}{2}}}W_{-\mu-\frac{1}{2},\frac{\nu}{2}}\left(\frac{a^2e^{i\pi}}{4s}\right)$	Re$(\mu\pm\frac{\nu}{2}) > -1$ Re s > o

		f(t)	g(s)	
11.2 (Contd.)	8	$t^{-\frac{\nu}{2}}H_\nu^{(2)}(at^{\frac{1}{2}})$	$-\frac{2^\nu s^{\nu-1}e^{-\frac{a^2}{4s}}}{\pi ia^\nu}\Gamma(1-\nu)\Gamma(\nu,\frac{e^{i\pi}a^2}{4s})$	Re ν < 1 Re s > o
12	1	$I_0(at)$	$\frac{1}{(s^2-a^2)^{\frac{1}{2}}}$	Re s > |Re a|
	2	$I_0^2(at)$	$\frac{2}{\pi s}K(\frac{2a}{s})$	Re s > 2 |Re a|
	3	$\frac{1}{t}I_1(at)$	$\frac{s-(s^2-a^2)^{\frac{1}{2}}}{a}$	Re s > |Re a|
	4	$I_1^2(at)$	$\frac{1}{\pi a^2}\left[\frac{s^2-2a^2}{s}K(\frac{2a}{s})-sE(\frac{2a}{s})\right]$	Re s > 2|Re a|
	5	$I_{\frac{1}{2}}(at)$	$\left[\frac{s-(s^2-a^2)^{\frac{1}{2}}}{a(s^2-a^2)}\right]^{\frac{1}{2}}$	Re s > |Re a|
	6	$I_{-\frac{1}{2}}(at)$	$\left[\frac{(s^2-a^2)^{\frac{1}{2}}+s}{a(s^2-a^2)}\right]^{\frac{1}{2}}$	Re s > |Re a|
	7	$I_0(at)+I_1(at)$	$\frac{1}{a}\left[\left(\frac{s+a}{s-a}\right)^{\frac{1}{2}}-1\right]$	Re s > |Re a|
	8	$I_0^2(at)+I_1^2(at)$	$\frac{s}{\pi a^2}[K(\frac{2a}{s})-E(\frac{2a}{s})]$	Re s > 2 |Re a|
	9	$I_0(at)I_1(at)$	$\frac{1}{\pi a}K(\frac{2a}{s})-\frac{1}{2a}$	Re s > 2 |Re a|
	10	$\frac{1}{t}I_0(at)I_1(at)$	$\frac{s}{\pi a}[\frac{\pi}{2}-E(\frac{2a}{s})]$	Re s > 2 |Re a|
	11	$tI_0(at)I_1(at)$	$\frac{aE(\frac{2a}{s})}{\pi a(s^2-4a^2)}-\frac{K(\frac{2a}{s})}{\pi as}$	Re s > 2|Re a|
	12	$t[I_0^2(at)+I_1^2(at)]$	$\frac{1}{\pi a^2}\left[\frac{s^2}{s^2-4a^2}E(\frac{2a}{s})-K(\frac{2a}{s})\right]$	Re s > 2|Re a|

		$f(t)$	$g(s)$	
12 (Contd.)	13	$I_0(at)[I_0(at)+2atI_1(at)]$	$\frac{2}{\pi}\frac{s}{s^2-4a^2}E(\frac{2a}{s})$	Re s > 2 | Re a |
	14	$I_0^2(at)+2I_1^2(at)+I_0(at)I_2(at)$	$\frac{2s}{\pi a^2}[K(\frac{2a}{s})-\frac{\pi}{2}]$	Re s > 2 | Re a |
	15	$I_\nu(at)$	$\frac{[s-(s^2-a^2)^{\frac12}]^\nu}{a^\nu(s^2-a^2)^{\frac12}}$	Re ν > − 1 Re s > |Re a|
	16	$tI_\nu(at)$	$\frac{[s+\nu(s^2-a^2)^{\frac12}][s-(s^2-a^2)^{\frac12}]^\nu}{a^\nu(s^2-a^2)^{\frac32}}$	Re ν > −2 Re s > |Re a |
	17	$\frac{1}{t}I_\nu(at)$	$\frac{[s-(s^2-a^2)^{\frac12}]^\nu}{\nu a^\nu}$	Re ν > o Re s > |Re a |
	18	$I_{\nu-1}(at)+I_{\nu+1}(at)$	$\frac{2s[s-(s^2-a^2)^{\frac12}]^\nu}{a^{\nu+1}(s^2-a^2)^{\frac12}}$	Re ν > o Re s > |Re a|
	19	$I_{\nu-1}(at)+2I_\nu(at)+I_{\nu+1}(at)$	$\frac{4(s+a)^{\frac12}[(s+a)^{\frac12}-(s-a)^{\frac12}]^{2\nu}}{(2a)^{\nu+1}(s-a)^{\frac12}}$	Re ν > o Re s > |Re a|
12.1	1	$t^nI_n(at)$	$\frac{1.3.5\ldots(2n-1)a^n}{(s^2-a^2)^{n+\frac12}}$	n = 1,2,3,... Re s > |Re a |
	2	$\frac{a}{t}I_{\nu-1}(at)-\frac{\nu+1}{t^2}I_\nu(at)$	$\frac{s[s-(s^2-a^2)^{\frac12}]^\nu}{\nu a^\nu}$	Re ν > 1 Re s > |Re a |
	3	$\frac{1}{t^2}I_\nu(at)$	$\frac{[s+\nu(s^2-a^2)^{\frac12}][s-(s^2-a^2)^{\frac12}]^\nu}{\nu(\nu^2-1)a^\nu}$	Re ν > 1 Re s > |Re a|
	4	$I_\nu(t^2)$	$\frac{(-1)^{\nu+\frac12}\Gamma(\nu+\frac12)}{(2\pi)^{\frac12}}D_{-\nu-\frac12}(\frac{s}{2^{\frac12}})D_{-\nu-\frac12}(-\frac{s}{2^{\frac12}})$	Re ν > $-\frac12$ Re s > o
12.2	1	$\frac{1}{t^{\frac12}}I_1(at^{\frac12})$	$\frac{2}{a}(e^{\frac{a^2}{4s}}-1)$	Re s > o

		$f(t)$	$g(s)$	
12.2 (Contd.)	2	$\frac{I_1[a(t^2+2bt)^{\frac12}]}{(t^2+2bt)^{\frac12}}$	$\frac{e^{b[s-(s^2-a^2)^{\frac12}]}-1}{ab}$	Re s > |Re a
	3	$\frac{1}{t^{\frac12}}I_\nu(at)$	$(\frac{2}{a\pi})^{\frac12}Q_{\nu-\frac12}(\frac{s}{a})$	Re ν > $-\frac12$ Re s > |Re a
	4	$t^\mu I_\nu(at)$	$(\frac{2}{\pi a})^{\frac12}\frac{\sin[(\nu-\frac12)\pi]}{\sin[(\mu+\nu)\pi]}\frac{Q^{\mu+\frac12}_{\nu-\frac12}(\frac{s}{a})}{(s^2-a^2)^{\frac{\mu}{2}+\frac14}}$ $=\frac{a^\nu\Gamma(\mu+\nu+1)}{2^\mu\Gamma(\nu+1)s^{\mu+\nu+1}}{}_2F_1\left[\frac{\mu+\nu+1}{2},\frac{\mu+\nu+2}{2};\nu+1;\frac{a^2}{s^2}\right]$	Re(μ + ν) > − Re ν > − 1 Re s > |Re a
	5	$t^\nu I_\nu(at)$	$\frac{2^\nu\Gamma(\nu+\frac12)a^\nu}{\pi^{\frac12}(s^2-a^2)^{\nu+\frac12}}$	Re ν > $-\frac12$ Re s > |Re a
	6	$t^{\nu+1}I_\nu(at)$	$\frac{2^{\nu+1}\Gamma(\nu+\frac32)a^\nu s}{\pi^{\frac12}(s^2-a^2)^{\nu+\frac32}}$	Re ν > − 1 Re s > | Re a |
	7	$I_\nu(at^{\frac12})$	$\frac{a\pi^{\frac12}}{4s^{\frac32}}e^{\frac{a^2}{8s}}\left[I_{\frac{\nu-1}{2}}\left(\frac{a^2}{8s}\right)-I_{\frac{\nu+1}{2}}\left(\frac{a^2}{8s}\right)\right]$	Re ν > −2 Re s > o
	8	$\frac{1}{t^{\frac12}}I_\nu(at^{\frac12})$	$(\frac{\pi}{s})^{\frac12}e^{\frac{a^2}{8s}}I_{\frac{\nu}{2}}(\frac{a^2}{8s})$	Re ν > − 1 Re s > o
	9	$t^\mu I_\nu(at^{\frac12})$	$\frac{2\Gamma(\mu+\frac{\nu}{2}+1)e^{\frac{a^2}{8s}}}{a\Gamma(\nu+1)s^{\mu+\frac12}}M_{-\mu-\frac12,\frac{\nu}{2}}(\frac{a}{s})$	Re(μ + $\frac{\nu}{2}$) > − Re s > o
	10	$t^{\frac{\nu}{2}}I_\nu(at^{\frac12})$	$(\frac{a}{2})^\nu s^{-\nu-1}e^{\frac{a^2}{4s}}$	Re ν > − 1 Re s > 0
	11	$t^{-\frac{\nu}{2}}I_\nu(at^{\frac12})$	$\frac{2^\nu s^{\nu-1}e^{\frac{a^2}{4s}}}{a^\nu\Gamma(\nu)}\gamma(\nu,\frac{a^2}{4s})$	Re ν > o Re s > o
	12	$t^{\frac{\nu}{2}-1}I_\nu(at^{\frac12})$	$(\frac{-2}{a})^\nu P(-\frac{a^2}{4s},\nu)$	Re ν > o Re s > o

		$f(t)$	$g(s)$	
12.2 (Contd.)	13	$\sum_{n=0}^{\infty} I_{2\nu+2n+1}(at^{\frac{1}{2}})$	$\frac{a\pi^{\frac{1}{2}}}{(2s)^{\frac{3}{2}}} e^{\frac{a^2}{8s}} I_\nu\left(\frac{a^2}{8s}\right)$	$\mathrm{Re}\,\nu > -\frac{3}{2}$ $\mathrm{Re}\,s > 0$
	14	$(t^2+bt)^{\frac{\nu}{2}} I_\nu[a(t^2+bt)^{\frac{1}{2}}]$	$\pi^{-\frac{1}{2}}\left(\frac{a}{2}\right)^\nu \frac{b^{\nu+\frac{1}{2}}}{(s^2-a^2)^{\frac{\nu}{2}+\frac{1}{4}}} e^{\frac{bs}{2}} K_{\nu+\frac{1}{2}}\left[\frac{b(s^2-a^2)^{\frac{1}{2}}}{2}\right]$	$\mathrm{Re}\,\nu > -1$ $\lvert\arg b\rvert < \pi$ $\mathrm{Re}\,s > \lvert\mathrm{Re}\,a\rvert$
	15	$\left(\frac{t}{t+b}\right)^{\frac{\nu}{2}} I_\nu[a(t^2+bt)^{\frac{1}{2}}]$	$\frac{e^{\frac{b}{2}[s-(s^2-a^2)^{\frac{1}{2}}]}[s-(s^2-a^2)^{\frac{1}{2}}]^\nu}{a^\nu(s^2-a^2)^{\frac{1}{2}}}$	$\mathrm{Re}\,\nu > -1$ $\lvert\arg b\rvert < \pi$ $\mathrm{Re}\,s > \lvert\mathrm{Re}\,a\rvert$
	16	$\frac{t^{\mu-1}}{(t+b)^{\mu}} I_\nu[a(t^2+bt)^{\frac{1}{2}}]$	$\frac{2\Gamma(\mu+\frac{\nu}{2})e^{\frac{b}{2}s}}{ab\,\Gamma(\nu+1)} M_{\frac{1}{2}-\mu,\frac{\nu}{2}}\left[\frac{a^2b}{2[s+(s^2-a^2)^{\frac{1}{2}}]}\right]\cdot W_{\frac{1}{2}-\mu,\frac{\nu}{2}}\left[\frac{b[s+(s^2-a^2)^{\frac{1}{2}}]}{2}\right]$	$\mathrm{Re}(\mu+\frac{\nu}{2}) > 0$ $\lvert\arg b\rvert < \pi$ $\mathrm{Re}\,s > \lvert\mathrm{Re}\,a\rvert$
	17	$I_\nu^2(at^{\frac{1}{2}})$	$\frac{1}{s} e^{\frac{a^2}{2s}} I_\nu\left(\frac{a^2}{2s}\right)$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\,s > 0$
	18	$t^{\frac{1}{2}} I_{\nu-\frac{1}{4}}(t) I_{\nu+\frac{1}{4}}(t)$	$\frac{1}{\pi(2s)^{\frac{1}{2}}} Q^{1,2\nu-1}\left(\frac{s}{2}\right)$	$\mathrm{Re}\,s > 1$
	19	$t^c I_\mu(at) I_\nu(bt)$	$\frac{2^c a^\mu b^\nu \Gamma\left(\frac{c+\mu+\nu+1}{2}\right)\Gamma\left(\frac{c+\mu+\nu+2}{2}\right)}{\pi^{\frac{1}{2}}\Gamma(\mu+1)\Gamma(\nu+1)s^{c+\mu+\nu+1}}\cdot F_4\left(\frac{c+\mu+\nu+1}{2}, \frac{c+\mu+\nu+2}{2}; \mu+1, \nu+1; \frac{a^2}{s^2}, \frac{b^2}{s^2}\right)$	$\mathrm{Re}(c+\mu+\nu) > -1$ $\mathrm{Re}\,s > \lvert\mathrm{Re}\,a\rvert + \lvert\mathrm{Re}\,b\rvert$
	20	$I_\nu(at^{\frac{1}{2}}) I_\nu(bt^{\frac{1}{2}})$	$\frac{1}{s} e^{\frac{a^2+b^2}{4s}} I_\nu\left(\frac{ab}{2s}\right)$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\,s > 0$
	21	$I_0[a(t^2+bt)^{\frac{1}{2}}]$	$\frac{1}{(s^2-a^2)^{\frac{1}{2}}} e^{\frac{b}{2}[s-(s^2-a^2)^{\frac{1}{2}}]}$	$\lvert\arg b\rvert < \pi$ $\mathrm{Re}\,s > \lvert\mathrm{Re}\,a\rvert$
	22	$I_0(at^{\frac{1}{2}})$	$\frac{1}{s} e^{\frac{a^2}{4s}}$	$\mathrm{Re}\,s > 0$
	23	$\frac{1}{t^{\frac{1}{2}}} I_0(at^{\frac{1}{2}})$	$\left(\frac{\pi}{s}\right)^{\frac{1}{2}} e^{\frac{a^2}{8s}} I_0\left(\frac{a^2}{8s}\right)$	$\mathrm{Re}\,s > 0$

		$f(t)$	$g(s)$	
12.2.1	1	$\frac{t+b}{(t^2+2bt)^{\frac{1}{2}}} I_1[a(t^2+2bt)^{\frac{1}{2}}]$	$\frac{1}{a}\left[\frac{s}{(s^2-a^2)^{\frac{1}{2}}} e^{b[s-(s^2-a^2)^{\frac{1}{2}}]} - 1\right]$	$\mathrm{Re}\,s > \lvert\mathrm{Re}\,a\rvert$
12.3	1	$e^{-at} I_0(bt)$	$\frac{1}{[(s+a+b)(s+a-b)]^{\frac{1}{2}}}$	$\mathrm{Re}\,s > \mathrm{Max}\,-\mathrm{Re}(a+b), -\mathrm{Re}(a-b)$
	2	$\frac{1}{t} e^{-\frac{a}{t}} I_0\left(\frac{a}{t}\right)$	$2 I_0[(2as)^{\frac{1}{2}}] K_0[(2as)^{\frac{1}{2}}]$	$\mathrm{Re}\,s > 0$
	3	$e^{-at} I_\nu(bt)$	$\frac{[(s+a+b)^{\frac{1}{2}} - (s+a-b)^{\frac{1}{2}}]^{2\nu}}{(2b)^\nu[(s+a)^2-b^2]^{\frac{1}{2}}}$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\,s > \mathrm{Max}\,\mathrm{Re}(b-a), -\mathrm{Re}(b+a)$
	4	$\frac{1}{t} e^{-at} I_\nu(bt)$	$\frac{[(s+a+b)^{\frac{1}{2}} - (s+a-b)^{\frac{1}{2}}]^{2\nu}}{\nu(2b)^\nu}$	$\mathrm{Re}\,s > \mathrm{Max}\,\mathrm{Re}(b-a), -\mathrm{Re}(b+a)$ $\mathrm{Re}\,\nu > 0$
	5	$e^{at} I_\nu(at)$	$\frac{[s^{\frac{1}{2}}-(s-2a)^{\frac{1}{2}}]^{2\nu}}{(2a)^\nu s^{\frac{1}{2}}(s-2a)^{\frac{1}{2}}}$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\,s > \mathrm{Max}\,0, \mathrm{Re}\,a$
	6	$e^{-at} I_\nu(at)$	$\frac{[(s+2a)^{\frac{1}{2}}-s^{\frac{1}{2}}]^{2\nu}}{(2a)^\nu s^{\frac{1}{2}}(s+2a)^{\frac{1}{2}}}$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\,s > \mathrm{Max}\,0, -\mathrm{Re}\,a$
	7	$\frac{1}{t} e^{-at} I_\nu(at)$	$\frac{[(s+2a)^{\frac{1}{2}} - s^{\frac{1}{2}}]^{2\nu}}{\nu(2a)^\nu}$	$\mathrm{Re}\,\nu > 0$ $\mathrm{Re}\,s > \mathrm{Max}\,0, -\mathrm{Re}(2a)$
	8	$\frac{1}{t} e^{-\frac{a+b}{2t}} I_\nu\left(\frac{a-b}{2t}\right)$	$2K_\nu[(a^{\frac{1}{2}}+b^{\frac{1}{2}})s^{\frac{1}{2}}] I_\nu[(a^{\frac{1}{2}}-b^{\frac{1}{2}})s^{\frac{1}{2}}]$	$\mathrm{Re}\,a > \mathrm{Re}\,b > 0$ $\mathrm{Re}\,s > 0$
	9	$te^{-at}[I_0(bt)+I_1(bt)]$	$\frac{1}{(s+a+b)^{\frac{1}{2}}(s+a-b)^{\frac{3}{2}}}$	$\mathrm{Re}\,s > \mathrm{Max}\,\mathrm{Re}(b-a), -\mathrm{Re}(b+a)$
	10	$\exp[a(1-e^{-t})] I_\nu(ae^{-t})$	$\frac{I_\nu(a)}{\nu+s} + \sum_{n=1}^{\infty} \frac{(\nu-s+1)_{n-1}}{(\nu+s)_{n+1}}(\nu+n) I_{\nu+n}(a)$	$\mathrm{Re}\,s > -\mathrm{Re}\,\nu$
	11	$e^{-at}[I_\nu'(at) - I_\nu(at)]$	$\frac{2}{(2a)^{\nu+1}}\left(\frac{s}{s+2a}\right)^{\frac{1}{2}}\left[(s+2a)^{\frac{1}{2}}-s^{\frac{1}{2}}\right]^{2\nu}$	$\mathrm{Re}\,\nu > 0$ $\mathrm{Re}\,s > \mathrm{Max}\,0, -\mathrm{Re}(2a)$

		$f(t)$	$g(s)$	
12.3 (Contd.)	12	$e^{-bt} I_0(at)+(b-a)\int_0^t e^{-bu} I_0(au)du$	$\frac{(s+b-a)^{\frac12}}{s(s+a+b)^{\frac12}}$	Re s > Max 0, Re(a-b), - Re(a+b)
12.3.1	1	$e^{-\frac{t^2}{a}} I_0(\frac{t^2}{a})$	$\frac14(\frac{2a}{\pi})^{\frac12} e^{\frac{as^2}{16}} K_0(\frac{as^2}{16})$	Re a > 0 Re s > 0
	2	$e^{-at}[(1+2bt)I_0(bt)+2bt\,I_1(bt)]$	$\frac{(s+a+b)^{\frac12}}{(s+a-b)^{\frac32}}$	Re s > Max - Re(a+b), Re(b-a)
12.3.2	1	$\frac{e^{at}}{t^{\frac12}} * [I_0(bt)e^{ct}]$	$\frac{\pi^{\frac12}}{[(s-a)(s-b-c)(s+b-c)]^{\frac12}}$	Re s > Max Re a, Re(b+c), Re(c-b)
	2	$\frac1t\left[\frac{e^{at}}{t^{\frac12}} * [I_0(bt)e^{ct}]\right]$	$\pi^{\frac12}\int_s^\infty \frac{du}{[(u-a)(u-b-c)(u+b-c)]^{\frac12}}$	Re s > Max Re a, Re(b+c), Re(c-b)
	3	$\frac{e^t}{t}\left[\frac{1}{t^{\frac12}} * e^{(a-1)t} I_0(at)\right]$	$2\pi^{\frac12} F(2^{\frac12}a^{\frac12}, \sin^{-1}\frac{1}{s^{\frac12}})$	Re s > 0
	4	$\frac{e^{-\frac at}}{t^{\frac12}}\left[I_{\frac14}(\frac at) - I_{-\frac14}(\frac at)\right] + \frac{2^{\frac32}a^{\frac14}\Gamma(\frac14)}{\pi t^{\frac34}}$	$4\left(\frac{\pi a}{s}\right)^{\frac12}\left\{I_{\frac12}[(8as)^{\frac12}] - L_{\frac12}[(8as)^{\frac12}]\right\}$	Re s > 0
	5	$t^\nu e^{-at} I_\nu(bt)$	$\frac{(2b)^\nu\,\Gamma(\nu+\frac12)}{\pi^{\frac12}(s+a+b)^{\nu+\frac12}(s+a-b)^{\nu+\frac12}}$	Re ν > - ½ Re s > Max - Re(a+b), Re(b-a)
	6	$\frac{1}{t^{\frac12}} e^{-\frac at} I_0(\frac at)$	$\left(\frac{\pi}{s}\right)^{\frac12}\left[I_0[(8as)^{\frac12}] - L_0[(8as)^{\frac12}]\right]$	Re $a^{\frac12}$ > 0 Re s > 0
	7	$\left(\frac{t}{t+2c}\right)^{\frac{\nu}{2}} e^{-(a+b)t} I_\nu[a(t^2+2ct)^{\frac12}]$	$\frac{a^\nu e^{[cs-c(s+2a+b)^{\frac12}(s+b)^{\frac12}+c(a+b)]}}{(s+2a+b)^{\frac12}(s+b)^{\frac12}[s+(a+b)+(s+2a+b)^{\frac12}(s+b)^{\frac12}]^\nu}$	Re ν > - 1 Re s > Max - Re b, - Re(2a+b)
12.3.2.1	1	$e^{-a(t+b)} I_0[c(t^2+2bt)^{\frac12}]$	$\frac{e^{b[s-(s+a+c)^{\frac12}(s+a-c)^{\frac12}]}}{[(s+a+c)(s+a-c)]^{\frac12}}$	Re s > Max - Re(a+c), Re(c-a)

		$f(t)$	$g(s)$	
12.3.2.1 (Contd.)	2	$t^{\frac12} e^{-\frac{t^2}{a}} I_{\frac14}(\frac{t^2}{a})$	$\left(\frac{a}{2s}\right)^{\frac12} e^{\frac{as^2}{8}} \frac{\Gamma(\frac14, \frac{as^2}{8})}{\Gamma(\frac14)}$	Re a > 0 Re s > 0
	3	$t^{2\nu} e^{-\frac{t^2}{a}} I_\nu(\frac{t^2}{a})$	$2^{-\frac{11\nu}{2}} \frac{a^{\frac{\nu}{2}}\Gamma(4\nu+1)}{\Gamma(\nu+1)} s^{-\nu-1} e^{\frac{as^2}{16}} W_{-\frac{3\nu}{2}, \frac{\nu}{2}}\left(\frac{as^2}{8}\right)$	Re a > 0 Re ν > - ¼ Re s > 0
12.7.2	1	$t^\nu \sinh t\, I_\nu(t)$	$\frac{Q^{\nu+1, -\nu-\frac12}(\frac s2)}{(2\pi)^{\frac12}(2s)^{\nu+\frac12}}$	Re s > 1
	2	$t^\nu \cosh t\, I_\nu(t)$	$\frac{Q^{\nu+1, -\nu-\frac32}(\frac s2)}{\pi^{\frac12}(4s)^{\nu+\frac12}}$	Re s > 1
12.10	1	$J_0(at) * I_0(at)$	$\frac{1}{(s^4-a^4)^{\frac12}}$	Re s > |Re a|
	2	$\frac1t[J_0(at) * I_0(at)]$	$a\int_s^\infty \frac{du}{(u^4-a^4)^{\frac12}}$	Re s > Max |Re a|, |Re b|
12.10.2	1	$\frac{1}{t^{\frac12}}[I_\nu(at^{\frac12})+J_\nu(at^{\frac12})]$	$2\pi^{\frac12}s^{-\frac12}\cosh\frac{a^2}{8s}\, I_{\frac{\nu}{2}}\left(\frac{a^2}{8s}\right)$	Re ν > - 1 Re s > 0
	2	$\frac{1}{t^{\frac12}}[I_\nu(at^{\frac12})-J_\nu(at^{\frac12})]$	$2\pi^{\frac12}s^{-\frac12}\sinh\frac{a^2}{8s}\, I_{\frac{\nu}{2}}\left(\frac{a^2}{8s}\right)$	Re ν > - 1 Re s > 0
	3	$t^{\frac{\nu}{2}}[I_\nu(at^{\frac12})+J_\nu(at^{\frac12})]$	$2(\frac a2)^\nu s^{-\nu-1}\cosh\frac{a^2}{4s}$	Re ν > - 1 Re s > 0
	4	$t^{\frac{\nu}{2}}[I_\nu(at^{\frac12})-J_\nu(at^{\frac12})]$	$2(\frac a2)^\nu s^{-\nu-1}\sinh\frac{a^2}{4s}$	Re ν > - 2 Re s > 0
	5	$J_\nu(at^{\frac12})I_\nu(at^{\frac12})$	$\frac1s J_\nu(\frac{a^2}{2s})$	Re ν > - 1 Re s > 0
	6	$J_\nu(bt^{\frac12})I_\nu(at^{\frac12})$	$\frac1s e^{\frac{a^2-b^2}{4s}} J_\nu(\frac{ab}{2s})$	Re ν > - 1 Re s > 0

		$f(t)$	$g(s)$	
12.10.2 (Contd.)	7	$I_\nu(at^{\frac{1}{2}})I_\nu(bt^{\frac{1}{2}})+J_\nu(at^{\frac{1}{2}})J_\nu(bt^{\frac{1}{2}})$	$\frac{2}{s}\cosh\frac{a^2+b^2}{4s}I_\nu\left(\frac{ab}{2s}\right)$	Re $\nu > -1$ Re $s > 0$
	8	$I_\nu(at^{\frac{1}{2}})I_\nu(bt^{\frac{1}{2}})-J_\nu(at^{\frac{1}{2}})J_\nu(bt^{\frac{1}{2}})$	$\frac{2}{s}\sinh\frac{a^2+b^2}{4s}I_\nu\left(\frac{ab}{2s}\right)$	Re $\nu > -1$ Re $s > 0$
	9	$I_\nu^2[(2t)^{\frac{1}{2}}]+J_\nu^2[(2t)^{\frac{1}{2}}]$	$\frac{2}{s}I_\nu(\frac{1}{s})\cosh\frac{1}{s}$	Re $\nu > -1$ Re $s > 0$
	10	$I_\nu^2[(2t)^{\frac{1}{2}}]-J_\nu^2[(2t)^{\frac{1}{2}}]$	$\frac{2}{s}I_\nu(\frac{1}{s})\sinh\frac{1}{s}$	Re $\nu > -1$ Re $s > 0$
13	1	$K_0(at)$	$\frac{\log\frac{s+(s^2-a^2)^{\frac{1}{2}}}{a}}{(s^2-a^2)^{\frac{1}{2}}}$ $=\frac{\sinh^{-1}\left[\left(\frac{s^2}{a^2}-1\right)^{\frac{1}{2}}\right]}{(s^2-a^2)^{\frac{1}{2}}}$ $=\frac{\cosh^{-1}\frac{s}{a}}{(s^2-a^2)^{\frac{1}{2}}}$	Re $s >$ − Re a
	2	$tK_0(at)$	$\frac{s\log\frac{s+(s^2-a^2)^{\frac{1}{2}}}{a}}{(s^2-a^2)^{\frac{3}{2}}}-\frac{1}{s^2-a^2}$	Re $s >$ − Re a
	3	$K_{\frac{1}{2}}(at)$	$\frac{\pi}{[2a(s+a)]^{\frac{1}{2}}}$	Re $s >$ − Re a
	4	$tK_1(at)$	$\frac{s}{a(s^2-a^2)}-\frac{a\log\frac{s+(s^2-a^2)^{\frac{1}{2}}}{a}}{(s^2-a^2)^{\frac{3}{2}}}$	Re $s >$ − Re a
	5	$K_\nu(at)$	$\frac{\pi\,\mathrm{cosec}(\nu\pi)\{[s+(s^2-a^2)^{\frac{1}{2}}]^\nu-[s-(s^2-a^2)^{\frac{1}{2}}]^\nu\}}{2a^\nu(s^2-a^2)^{\frac{1}{2}}}$	$\|$Re $\nu\| < 1$ Re $s >$ − Re a
13.2	1	$\frac{1}{t^{\frac{1}{2}}}K_\nu(t)$	$(\frac{\pi}{2})^{\frac{1}{2}}\frac{\pi}{\cos(\nu\pi)}P_{\nu-\frac{1}{2}}(s)$	$\|$Re $\nu\| < \frac{1}{2}$ Re $s > -1$

		$f(t)$	$g(s)$	
13.2 (Contd.)	2	$t^\mu K_\nu(at)$	$(\frac{\pi}{2a})^{\frac{1}{2}}\frac{\Gamma(\mu-\nu+1)\Gamma(\mu+\nu+1)}{(s^2-a^2)^{\frac{\mu}{2}+\frac{1}{4}}}P_{\nu-\frac{1}{2}}^{-\mu-\frac{1}{2}}(\frac{s}{a})$ $=\frac{\sin(\mu\pi)\Gamma(\mu-\nu+1)}{\sin[(u+\nu)\pi](s^2-a^2)^{\frac{\mu+1}{2}}}Q_\mu^\nu\left[\frac{s}{(s^2-a^2)^{\frac{1}{2}}}\right]$	Re$(\mu+\nu) > -1$ Re$(\mu-\nu) > -1$ Re $s >$ − Re a
	3	$K_0(at^{\frac{1}{2}})$	$-\frac{e^{\frac{a^2}{4s}}}{2s}\mathrm{Ei}\left(-\frac{a^2}{4s}\right)$	Re $s > 0$
	4	$\frac{1}{t^{\frac{1}{2}}}K_0(at^{\frac{1}{2}})$	$\frac{\pi^{\frac{1}{2}}}{2s^{\frac{1}{2}}}e^{\frac{a^2}{8s}}K_0\left(\frac{a^2}{8s}\right)$	Re $s > 0$
	5	$\frac{1}{t^{\frac{1}{2}}}K_{\frac{1}{3}}(\frac{2}{t^{\frac{1}{2}}})$	$\frac{\pi}{3^{\frac{1}{2}}s^{\frac{1}{3}}}e^{-3s^{\frac{1}{3}}}$	Re $s > 0$
	6	$\frac{1}{t^{\frac{1}{3}}}K_{\frac{1}{3}}(\frac{2}{t^{\frac{1}{2}}})$	$\frac{\pi}{3^{\frac{1}{2}}}e^{-3s^{\frac{1}{3}}}$	Re $s > 0$
	7	$\frac{1}{t}K_{\frac{1}{3}}(\frac{2}{t^{\frac{1}{2}}})$	$\frac{\pi}{3^{\frac{1}{2}}s^{\frac{1}{3}}}e^{-3s^{\frac{1}{3}}}$	Re $s > 0$
	8	$K_1(at^{\frac{1}{2}})$	$\frac{a\pi^{\frac{1}{2}}}{8s^{\frac{3}{2}}}e^{\frac{a^2}{8s}}\left[K_1\left(\frac{a^2}{8s}\right)-K_0\left(\frac{a^2}{8s}\right)\right]$	Re $s > 0$
	9	$\frac{1}{t^{\frac{1}{2}}}K_\nu(at^{\frac{1}{2}})$	$\frac{\pi^{\frac{1}{2}}}{2s^{\frac{1}{2}}}\sec\frac{\nu\pi}{2}e^{\frac{a^2}{8s}}K_{\frac{\nu}{2}}\left(\frac{a^2}{8s}\right)$	$\|$Re $\nu\| < 1$ Re $s > 0$
	10	$t^\mu K_\nu(at^{\frac{1}{2}})$	$\frac{\Gamma(\mu+\frac{\nu}{2}+1)\Gamma(\mu-\frac{\nu}{2}+1)}{as^{\mu+\frac{1}{2}}}e^{\frac{a^2}{8s}}\cdot W_{-\mu-\frac{1}{2},\frac{\nu}{2}}\left(\frac{a^2}{4s}\right)$	Re$(\mu\pm\frac{\nu}{2}) > -1$ Re $s > 0$
	11	$t^{\frac{\nu}{2}}K_\nu(at^{\frac{1}{2}})$	$\frac{a^\nu\Gamma(\nu+1)}{(2s)^{\nu+1}}e^{\frac{a^2}{4s}}\Gamma\left(-\nu,\frac{a^2}{4s}\right)$	Re $\nu > -1$ Re $s > 0$

		f(t)	g(s)	
13.2 (Contd.)	12	$\frac{t^{\mu-1}}{(t+b)^{\mu}} K_{\nu}[a(t^2+bt)^{\frac{1}{2}}]$	$\frac{\Gamma(\mu+\frac{\nu}{2})\Gamma(\mu-\frac{\nu}{2})}{ab} e^{\frac{ba}{2}} W_{\frac{1}{2}-\mu,\frac{\nu}{2}}\left[\frac{a^2 b}{2[s+(s^2-a^2)^{\frac{1}{2}}]}\right] \cdot W_{\frac{1}{2}-\mu,\frac{\nu}{2}}\left[\frac{b[s+(s^2-a^2)^{\frac{1}{2}}]}{2}\right]$	$\mathrm{Re}(\mu\pm\frac{\nu}{2})>0$ $\lvert\arg b\rvert<\pi$ $\mathrm{Re}\, s>\lvert\mathrm{Re}\, a\rvert$
13.3	1	$\frac{1}{t} e^{-\frac{a}{t}} K_{\nu}(bt)$	$2K_{\nu}\left[[2as+2a(s^2-a^2)^{\frac{1}{2}}]^{\frac{1}{2}}\right] K_{\nu}\left[\frac{1}{a}[bs-b(s^2-a^2)^{\frac{1}{2}}]^{\frac{1}{2}}\right]$	$\mathrm{Re}\, a>0$ $\mathrm{Re}\, s>-\mathrm{Re}\, b$
	2	$\frac{1}{t} e^{-\frac{a+b}{2t}} K_{\nu}(\frac{a-b}{2t})$	$2K_{\nu}[(a^{\frac{1}{2}}+b^{\frac{1}{2}})s^{\frac{1}{2}}] K_{\nu}[(a^{\frac{1}{2}}-b^{\frac{1}{2}})s^{\frac{1}{2}}]$	$\mathrm{Re}\, a>\mathrm{Re}\, b>0$ $\mathrm{Re}\, s>0$
13.3.1	1	$\frac{1}{t} e^{t-\frac{1}{2t}} K_{\nu}(t)$	$K_{\nu}[(\frac{s}{2})^{\frac{1}{2}}+(\frac{s}{2}-1)^{\frac{1}{2}}] K_{\nu}[(\frac{s}{2})^{\frac{1}{2}}-(\frac{s}{2}-1)^{\frac{1}{2}}]$	$\mathrm{Re}\, s>2$
13.3.2	1	$\frac{1}{t^{\frac{1}{2}}} e^{\frac{a}{t}} K_0(\frac{a}{t})$	$\frac{\pi^{\frac{3}{2}}}{2s^{\frac{1}{2}}}\left[H_0[(8as)^{\frac{1}{2}}]-Y_0[(8as)^{\frac{1}{2}}]\right]$	$\mathrm{Re}\, s>0$
	2	$\frac{1}{t^{\frac{1}{2}}} e^{-\frac{a}{t}} K_{\nu}(\frac{a}{t})$	$\frac{2\pi^{\frac{1}{2}}}{s^{\frac{1}{2}}} K_{2\nu}[(8as)^{\frac{1}{2}}]$	$\mathrm{Re}\, a>0$ $\mathrm{Re}\, s>0$
	3	$\frac{e^{\frac{a}{t}}}{t^{\frac{3}{2}}}[K_1(\frac{a}{t})-K_0(\frac{a}{t})]$	$\frac{2^{\frac{1}{2}}\pi^{\frac{3}{2}}}{a^{\frac{1}{2}}}\left[Y_{-1}[(8as)^{\frac{1}{2}}]-H_{-1}[(8as)^{\frac{1}{2}}]\right]$	$\mathrm{Re}\, s>0$
13.7	1	$K_0(2a\sinh\frac{t}{2})$	$\frac{\pi}{2} Y_s(a)\frac{\partial J_s(a)}{\partial s}-\frac{\pi}{2} J_s(a)\frac{\partial Y_s(a)}{\partial s}$	$\mathrm{Re}\, a>0$ $\mathrm{Re}\, s>-\infty$
	2	$\cosh t\, K_0(a\sinh\frac{t}{2})$	$\frac{\pi}{2} Y'_s(a)\frac{\partial J'_s(a)}{\partial s}-\frac{\pi}{2} J'_s(a)\frac{\partial Y'_s(a)}{\partial s} - \frac{\pi}{2}\frac{s^2}{a^2}\left[J_s(a)\frac{\partial Y_s(a)}{\partial s}-Y_s(a)\frac{\partial J_s(a)}{\partial s}\right]$ where $J'_s=\frac{dJ_s}{da}$	$\mathrm{Re}\, a>0$ $\mathrm{Re}\, s>-\infty$
	3	$K_{\nu}[2a\sinh\frac{t}{2}]$	$\frac{\pi^2\operatorname{cosec}(\nu\pi)}{2}\left[J_{\frac{\nu}{2}-s}(a) Y_{-\frac{\nu}{2}-s}(a) - J_{-\frac{\nu}{2}-s}(a) Y_{\frac{\nu}{2}-s}(a)\right]$	$\mathrm{Re}\, a>0$ $\lvert\mathrm{Re}\,\nu\rvert<1$ $\mathrm{Re}\, s>-\infty$

		f(t)	g(s)	
13.7 (Contd.)	4	$\operatorname{cosech}\frac{t}{2} K_{\nu}[a\operatorname{cosech}\frac{t}{2}]$	$a^{-1}\Gamma(s+\frac{\nu}{2}+\frac{1}{2})\Gamma(s-\frac{\nu}{2}+\frac{1}{2}) W_{-s,\frac{\nu}{2}}(ia) \cdot W_{-s,\frac{\nu}{2}}(-ia)$	$\mathrm{Re}\, a>0$ $\mathrm{Re}(s\pm\frac{\nu}{2})>-1$
13.7.3	1	$\operatorname{cosech}\frac{t}{2}\exp\left(-\frac{ae^t+b}{e^t-1}\right) K_{\nu}\left[\frac{a^{\frac{1}{2}}b^{\frac{1}{2}}}{\sinh\frac{t}{2}}\right]$	$\frac{1}{(ab)^{\frac{1}{2}}}\Gamma(s+\frac{\nu}{2}+\frac{1}{2})\Gamma(s-\frac{\nu}{2}+\frac{1}{2}) e^{\frac{b-a}{2}} W_{-s,\frac{\nu}{2}}(a) \cdot W_{-s,\frac{\nu}{2}}(b)$	$\mathrm{Re}\, a>0$ $\mathrm{Re}\, b>0$ $\mathrm{Re}(s\pm\frac{\nu}{2})>-\frac{1}{2}$
	2	$\operatorname{cosech} t\; e^{(a+b)\coth t} K_{\nu}[2a^{\frac{1}{2}}b^{\frac{1}{2}}\operatorname{cosech} t]$	$\frac{\Gamma(\frac{1+\nu+s}{2})\Gamma(\frac{1-\nu+s}{2})}{2a^{\frac{1}{2}}b^{\frac{1}{2}}} W_{-\frac{s}{2},\frac{\nu}{2}}(2a) \cdot W_{\frac{s}{2},\frac{\nu}{2}}(2b)$	$\mathrm{Re}\, a>0$ $\mathrm{Re}\, b>0$ $\mathrm{Re}(s\pm\nu)>-1$
13.10.2	1	$\frac{1}{t^{\frac{1}{2}}} K_0(at^{\frac{1}{2}})+\frac{\pi}{2t^{\frac{1}{2}}} Y_0(at^{\frac{1}{2}})$	$(\frac{\pi}{s})^{\frac{1}{2}}\sinh\frac{a^2}{8s} K_0\left(\frac{a^2}{8s}\right)$	$\mathrm{Re}\, s>0$
	2	$\frac{1}{t^{\frac{1}{2}}} K_0(at^{\frac{1}{2}})-\frac{\pi}{2t^{\frac{1}{2}}} Y_0(at^{\frac{1}{2}})$	$(\frac{\pi}{s})^{\frac{1}{2}}\cosh\frac{a^2}{8s} K_0\left(\frac{a^2}{8s}\right)$	$\mathrm{Re}\, s>0$
	3	$\frac{1}{t^{\frac{1}{2}}} K_{\nu}(at^{\frac{1}{2}})\left\{\sin[(\frac{\nu}{2}-\frac{1}{4})\pi] J_{\nu}(at^{\frac{1}{2}}) + \cos[(\frac{\nu}{2}-\frac{1}{4})\pi] Y_{\nu}(at^{\frac{1}{2}})\right\}$	$-\frac{\Gamma(\frac{1}{4}+\frac{\nu}{2})\Gamma(\frac{1}{4}-\frac{\nu}{2})}{(2\pi)^{\frac{1}{2}}a^2} s^{\frac{1}{2}} W_{\frac{1}{4},\frac{\nu}{2}}(i\frac{a^2}{2s}) \cdot W_{\frac{1}{4},\frac{\nu}{2}}(-i\frac{a^2}{2s})$	$\lvert\mathrm{Re}\,\nu\rvert<\frac{1}{2}$ $\mathrm{Re}\, s>0$
13.12	1	$I_0(at)\log a+K_0(at)$	$\frac{\log[s+(s^2-a^2)^{\frac{1}{2}}]}{(s^2-a^2)^{\frac{1}{2}}}$	$\mathrm{Re}\, s>\lvert\mathrm{Re}\, a\rvert$
13.12.2	1	$t^{\nu} K_{\nu}(at^{\frac{1}{2}}) I_{\nu}(at^{\frac{1}{2}})$	$\frac{\Gamma(\nu+\frac{1}{2})a^{\nu-1}}{2s^{\frac{3\nu+1}{2}}} e^{\frac{a^2}{2s}} W_{-\frac{\nu}{2},\frac{\nu}{2}}(\frac{a^2}{s})$	$\mathrm{Re}\,\nu>-\frac{1}{2}$
13.12.7	1	$t[I_0(at)\log a+K_0(at)]+\frac{\sinh(at)}{a}$	$\frac{s\log[s+(s^2-a^2)^{\frac{1}{2}}]}{(s^2-a^2)^{\frac{3}{2}}}$	$\mathrm{Re}\, s>\lvert\mathrm{Re}\, a\rvert$
	2	$t[I_1(at)\log a-K_1(at)]+\frac{\cosh(at)}{a}$	$\frac{a\log[s+(s^2-a^2)^{\frac{1}{2}}]}{(s^2-a^2)^{\frac{3}{2}}}$	$\mathrm{Re}\, s>\lvert\mathrm{Re}\, a\rvert$

		$f(t)$	$g(s)$	
15	1	$\theta_1\left(\frac{\nu}{2a}\,\middle\|\,\frac{t}{a^2}\right)$	$-\frac{a}{s^{\frac{1}{2}}}\sinh(\nu s^{\frac{1}{2}})\operatorname{sech}(as^{\frac{1}{2}})$	$-a < \nu < a$ $\operatorname{Re} s > 0$
	2	$\theta_2(n\,\|\,at)$	$(-1)^n\,\frac{\tanh\left[\left(\frac{s}{a}\right)^{\frac{1}{2}}\right]}{(as)^{\frac{1}{2}}}$	n an integer $\operatorname{Re} s > 0$
	3	$\theta_2\left(\frac{1}{2}+\frac{\nu}{2a}\,\middle\|\,\frac{t}{a^2}\right)$	$-\frac{a}{s^{\frac{1}{2}}}\sinh(\nu s^{\frac{1}{2}})\operatorname{sech}(as^{\frac{1}{2}})$	$-a < \nu < a$ $\operatorname{Re} s > 0$
	4	$\theta_3(n\,\|\,at)$	$\frac{\coth\left[\left(\frac{s}{a}\right)^{\frac{1}{2}}\right]}{(as)^{\frac{1}{2}}}$	n an integer $\operatorname{Re} s > 0$
	5	$\theta_3(\nu\,\|\,t)$	$\frac{\cosh\left[(2\nu-1)s^{\frac{1}{2}}\right]}{s^{\frac{1}{2}}\sinh s^{\frac{1}{2}}}$	$0 < \nu < 1$ $\operatorname{Re} s > 0$
	6	$\theta_3\left(\mu\,\middle\|\,\frac{t}{a^2}\right)-\theta_3\left(\nu\,\middle\|\,\frac{t}{a^2}\right)$	$\frac{\sinh\left[(a-\nu+\mu)s^{\frac{1}{2}}\right]\sinh\left[(\mu+\nu)s^{\frac{1}{2}}\right]}{s^{\frac{1}{2}}\sinh(as^{\frac{1}{2}})}$ $0<\mu+\nu<\nu-\mu<a$ $\frac{\sinh\left[(a-\nu-\mu)s^{\frac{1}{2}}\right]\sinh\left[(\nu-\mu)s^{\frac{1}{2}}\right]}{s^{\frac{1}{2}}\sinh(as^{\frac{1}{2}})}$ $0<\nu-\mu<\mu+\nu<a$	$\operatorname{Re} s > 0$
	7	$\theta_4(n\,\|\,at)$	$\frac{\operatorname{cosech}\left[\left(\frac{s}{a}\right)^{\frac{1}{2}}\right]}{(as)^{\frac{1}{2}}}$	n an integer $\operatorname{Re} s > 0$
	8	$\theta_4\left(\frac{1}{2}\,\middle\|\,t\right)$	$\frac{\coth s^{\frac{1}{2}}}{s^{\frac{1}{2}}}$	$\operatorname{Re} s > 0$
	9	$\theta_4\left(\frac{\nu}{2a}\,\middle\|\,\frac{t}{a^2}\right)$	$\frac{a}{s^{\frac{1}{2}}}\cosh(\nu s^{\frac{1}{2}})\operatorname{cosech}(as^{\frac{1}{2}})$	$-a < \nu < a$ $\operatorname{Re} s > 0$
	10	$\hat{\theta}_1\left(\frac{\nu}{2a}\,\middle\|\,\frac{t}{a^2}\right)$	$-\frac{a}{s^{\frac{1}{2}}}\cosh(\nu s^{\frac{1}{2}})\operatorname{sech}(as^{\frac{1}{2}})$	$-a < \nu < a$ $\operatorname{Re} s > 0$
	11	$\hat{\theta}_2\left(\frac{1}{2}\,\middle\|\,at\right)$	$\frac{\operatorname{sech}\left[\left(\frac{s}{a}\right)^{\frac{1}{2}}\right]}{(as)^{\frac{1}{2}}}$	$\operatorname{Re} s > 0$

		$f(t)$	$g(s)$	
15 (Contd.)	12	$\hat{\theta}_2(\nu\,\|\,t)$	$\frac{1}{s^{\frac{1}{2}}}\cosh\left[(2\nu-1)s^{\frac{1}{2}}\right]\operatorname{sech} s^{\frac{1}{2}}$	$0 < \nu < 1$ $\operatorname{Re} s > 0$
	13	$\hat{\theta}_3(\nu\,\|\,t)$	$-\frac{1}{s^{\frac{1}{2}}}\sinh\left[(2\nu-1)s^{\frac{1}{2}}\right]\operatorname{cosech} s^{\frac{1}{2}}$	$0 < \nu < 1$ $\operatorname{Re} s > 0$
	14	$\hat{\theta}_4\left(\frac{\nu}{2a}\,\middle\|\,\frac{t}{a^2}\right)$	$-\frac{1}{s^{\frac{1}{2}}}\sinh(\nu s^{\frac{1}{2}})\operatorname{cosech}(as^{\frac{1}{2}})$	$-a < \nu <$ $\operatorname{Re} s > 0$
	15	$\left[\frac{\partial}{\partial\nu}\theta_1\left(\frac{\nu}{2}\,\middle\|\,at\right)\right]_{\nu=0}$	$-\frac{1}{a}\operatorname{sech}\left[\left(\frac{s}{a}\right)^{\frac{1}{2}}\right]$	$\operatorname{Re} s > 0$
	16	$\frac{\partial}{\partial\nu}\theta_1\left(\frac{\nu}{2a}\,\middle\|\,\frac{t}{a^2}\right)$	$-a\cosh(\nu s^{\frac{1}{2}})\operatorname{sech}(as^{\frac{1}{2}})$	$-a<\nu<a$ $\operatorname{Re} s > 0$
	17	$\frac{\partial}{\partial\nu}\theta_2\left(\frac{1}{2}+\frac{\nu}{2a}\,\middle\|\,\frac{t}{a^2}\right)$	$-a\cosh(\nu s^{\frac{1}{2}})\operatorname{sech}(as^{\frac{1}{2}})$	$-a<\nu<a$ $\operatorname{Re} s > 0$
	18	$\frac{\partial}{\partial\nu}\theta_2\left(\frac{\nu}{2a}\,\middle\|\,\frac{t}{a^2}\right)$	$-a\cosh\left[(a-\nu)s^{\frac{1}{2}}\right]\operatorname{sech}(as^{\frac{1}{2}})$	$0<\nu<2a$ $\operatorname{Re} s > 0$
	19	$\frac{\partial}{\partial\nu}\theta_3\left(\frac{\nu}{2a}\,\middle\|\,\frac{t}{a^2}\right)$	$-a\sinh\left[(a-\nu)s^{\frac{1}{2}}\right]\operatorname{cosech}(as^{\frac{1}{2}})$	$0<\nu<2a$ $\operatorname{Re} s > 0$
	20	$\frac{\partial}{\partial\nu}\theta_4\left(\frac{\nu}{2a}\,\middle\|\,\frac{t}{a^2}\right)$	$a\sinh(\nu s^{\frac{1}{2}})\operatorname{cosech}(as^{\frac{1}{2}})$	$-a<\nu<a$ $\operatorname{Re} s > 0$
	21	$\frac{\partial}{\partial\nu}\hat{\theta}_1\left(\frac{\nu}{2a}\,\middle\|\,\frac{t}{a^2}\right)$	$-a\sinh(\nu s^{\frac{1}{2}})\operatorname{sech}(as^{\frac{1}{2}})$	$-a<\nu<a$ $\operatorname{Re} s > 0$
	22	$\frac{\partial}{\partial\nu}\hat{\theta}_2\left(\frac{\nu}{2}\,\middle\|\,t\right)$	$\sinh\left[(\nu-1)s^{\frac{1}{2}}\right]\cosh s^{\frac{1}{2}}$	$0<\nu<2$ $\operatorname{Re} s > 0$
	23	$\frac{\partial}{\partial\nu}\hat{\theta}_3\left(\frac{\nu}{2}\,\middle\|\,t\right)$	$\cosh\left[(\nu-1)s^{\frac{1}{2}}\right]\operatorname{cosech} s^{\frac{1}{2}}$	$0<\nu<2$ $\operatorname{Re} s > 0$
	24	$\frac{\partial}{\partial\nu}\hat{\theta}_4\left(\frac{\nu}{2a}\,\middle\|\,\frac{t}{a^2}\right)$	$-a\cosh(\nu s^{\frac{1}{2}})\operatorname{cosech}(as^{\frac{1}{2}})$	$-a<\nu<a$ $\operatorname{Re} s > 0$

		$f(t)$	$g(s)$	
15 (Contd.)	25	$\left[\frac{\partial}{\partial v}\hat{\theta}_4\left(\frac{v}{2a}\middle\|\frac{t}{a^2}\right)\right]_{v=0}$	$-a\ \mathrm{cosech}(as^{\frac{1}{2}})$	$\mathrm{Re}\ s > 0$
	26	$\int_0^1 \hat{\theta}_2(\frac{u}{2}\|at)du$	$\frac{1}{s}\tanh[(\frac{s}{a})^{\frac{1}{2}}]$	$\mathrm{Re}\ s > 0$
	27	$\int_1^a \theta_3(\frac{u}{2}\|t)du$	$\frac{1}{s}\sinh[(a-1)s^{\frac{1}{2}}]\mathrm{cosech}\ s^{\frac{1}{2}}$	$0 < a < 2$ $\mathrm{Re}\ s > 0$
	28	$\int_0^a \hat{\theta}_4(\frac{u}{2}\|t)du + \int_0^t\left[\frac{\partial}{\partial a}\hat{\theta}_4(\frac{a}{2}\|u)\right]_{a=0}du$	$\frac{1}{s}\cosh(as^{\frac{1}{2}})\mathrm{cosech}\ s^{\frac{1}{2}}$	$-1 < a < 1$ $\mathrm{Re}\ s > 0$
	29	$\int_a^1 \hat{\theta}_3(\frac{u}{2}\|t)du - \int_0^t\left[\frac{\partial}{\partial a}\theta_4(\frac{a}{2}\|u)\right]_{a=0}du$	$\frac{1}{s}\cosh[(a-1)s^{\frac{1}{2}}]\mathrm{cosech}\ s^{\frac{1}{2}}$	$0 < a < 2$ $\mathrm{Re}\ s > 0$
	30	$\int_0^a \theta_4(\frac{u}{2}\|t)du$	$-\frac{1}{s}\sinh(as^{\frac{1}{2}})\mathrm{cosech}\ s^{\frac{1}{2}}$	$-1 < a < 1$ $\mathrm{Re}\ s > 0$
	31	$\int_0^a \theta_2(\frac{u}{2}\|t)du$	$\frac{1}{s}-\frac{1}{s}\cosh[(a-1)s^{\frac{1}{2}}]\mathrm{sech}\ s^{\frac{1}{2}}$	$0 < a < 2$ $\mathrm{Re}\ s > 0$
	32	$\int_1^a \hat{\theta}_2(\frac{u}{2}\|t)du$	$\frac{1}{s}\sinh[(a-1)s^{\frac{1}{2}}]\mathrm{sech}\ s^{\frac{1}{2}}$	$0 < a < 2$ $\mathrm{Re}\ s > 0$
	33	$\int_1^a \theta_1(\frac{u}{2}\|t)du$	$\frac{\cosh(as^{\frac{1}{2}})\mathrm{sech}(s^{\frac{1}{2}})-1}{s}$	$-1 < a < 1$ $\mathrm{Re}\ s > 0$
	34	$\int_0^a \hat{\theta}_1(\frac{u}{2}\|t)du$	$\frac{1}{s}\sinh(as^{\frac{1}{2}})\mathrm{sech}\ s^{\frac{1}{2}}$	$-1 < a < 1$ $\mathrm{Re}\ s > 0$
	35	$\int_0^1 \theta_1(\frac{u}{2}\|t)du$	$\frac{1}{s}-\frac{\mathrm{sech}\ s^{\frac{1}{2}}}{s}$	$\mathrm{Re}\ s > 0$
	36	$\int_0^1 \hat{\theta}_2(\frac{u}{2}\|t)du$	$\frac{\tanh s^{\frac{1}{2}}}{s}$	$\mathrm{Re}\ s > 0$

		$f(t)$	$g(s)$	
15.3	1	$e^{at}\hat{\theta}_3(a^{\frac{1}{2}}t\|t)$	$\frac{1}{2s^{\frac{1}{2}}}[\tanh(s^{\frac{1}{2}}+a^{\frac{1}{2}})-\tanh(s^{\frac{1}{2}}-a^{\frac{1}{2}})+2]$	$\mathrm{Re}\ s > 0$
	2	$e^{at}\theta_3(a^{\frac{1}{2}}t\|t)$	$\frac{1}{2s^{\frac{1}{2}}}[\tanh(s^{\frac{1}{2}}+a^{\frac{1}{2}})+\tanh(s^{\frac{1}{2}}-a^{\frac{1}{2}})]$	$\mathrm{Re}\ s > 0$
15.3.2	1	$e^{a^2t}[\theta_3(at\|t)+\hat{\theta}_3(at\|t)]-\frac{1}{(\pi t)^{\frac{1}{2}}}$	$\frac{\tanh(s^{\frac{1}{2}}+a)}{s^{\frac{1}{2}}}$	$\mathrm{Re}\ s > 0$
16	1	$\mathrm{Erf}(\frac{t}{a})$	$\frac{1}{s}e^{\frac{a^2s^2}{4}}\mathrm{Erfc}(\frac{as}{2})$	$\|\arg a\| < \frac{\pi}{4}$ $\mathrm{Re}\ s > 0$
	2	$\mathrm{Erfc}(\frac{t}{a})$	$\frac{1-e^{\frac{a^2s^2}{4}}\mathrm{Erfc}(\frac{as}{2})}{s}$	$\|\arg a\| < \frac{\pi}{4}$ $\mathrm{Re}\ s > 0$
16.2	1	$\mathrm{Erf}(a^{\frac{1}{2}}t^{\frac{1}{2}})$	$\frac{a^{\frac{1}{2}}}{s(s+a)^{\frac{1}{2}}}$	$\mathrm{Re}\ s >$ Max $0, -$
	2	$\mathrm{Erfc}(a^{\frac{1}{2}}t^{\frac{1}{2}})$	$\frac{(s+a)^{\frac{1}{2}}-a^{\frac{1}{2}}}{s(s+a)^{\frac{1}{2}}}$	$\mathrm{Re}\ s > -\mathrm{Re}\ a$
	3	$\mathrm{Erf}\left(\frac{a^{\frac{1}{2}}}{2t^{\frac{1}{2}}}\right)$	$\frac{1-e^{-a^{\frac{1}{2}}s^{\frac{1}{2}}}}{s}$	$\mathrm{Re}\ a > 0$ $\mathrm{Re}\ s > 0$
	4	$\mathrm{Erfc}\left(\frac{a^{\frac{1}{2}}}{2t^{\frac{1}{2}}}\right)$	$\frac{1}{s}e^{-a^{\frac{1}{2}}s^{\frac{1}{2}}}$	$\mathrm{Re}\ a > 0$ $\mathrm{Re}\ s > 0$
	5	$e^{-ab}\mathrm{Erfc}\left(\frac{a}{2t^{\frac{1}{2}}}-bt^{\frac{1}{2}}\right)+e^{ab}\mathrm{Erfc}\left(\frac{a}{2t^{\frac{1}{2}}}+bt^{\frac{1}{2}}\right)$	$\frac{2e^{-a(s+b^2)^{\frac{1}{2}}}}{s}$	$\mathrm{Re}\ s > 0$
16.3.1	1	$e^{-a^2t^2}\mathrm{Erf}(iat)$	$\frac{\pi^{\frac{1}{2}}e^{\frac{s^2}{4a^2}}}{2ai}\mathrm{Ei}\left(-\frac{s^2}{4a^2}\right)$	$\|\arg a\| < \frac{\pi}{4}$ $\mathrm{Re}\ s > 0$
	2	$e^{-a^2t^2}\mathrm{Erfc}(iat)$	$\frac{\pi^{\frac{1}{2}}}{2a}e^{\frac{s^2}{4a^2}}\left[\mathrm{Erfc}(\frac{s}{2a})+\frac{i}{\pi}\mathrm{Ei}\left(-\frac{s^2}{4a^2}\right)\right]$	$\|\arg a\| < \frac{\pi}{4}$ $\mathrm{Re}\ s > 0$

		$f(t)$	$g(s)$	
16.3.1 (Contd.)	3	$e^{at}[\mathrm{Erf}(\frac{t}{2}+a)-\mathrm{Erf}(a)]$	$e^{s^2-a^2}\frac{\mathrm{Erfc}(s)}{s-a}$	Re s > Re a
	4	$e^{at}[\mathrm{Erf}(at+\frac{1}{2})-\mathrm{Erf}(\frac{1}{2})]$	$\frac{a\,e^{\frac{s^2}{4a^2}-\frac{1}{4}}\mathrm{Erfc}(\frac{s}{2a})}{s-a}$	Re s > Re a
16.3.2	1	$e^{-at}\mathrm{Erf}(bt^{\frac{1}{2}})$	$\frac{b}{(s+a)[s+a+b^2]^{\frac{1}{2}}}$	Re s > Max − Re a, −Re(a+b²)
	2	$e^{at}\mathrm{Erf}(a^{\frac{1}{2}}t^{\frac{1}{2}})$	$\frac{a^{\frac{1}{2}}}{s^{\frac{1}{2}}(s-a)}$	Re s > Max o, Re a
	3	$e^{a^2t}\mathrm{Erfc}(a\,t^{\frac{1}{2}})$	$\frac{1}{s^{\frac{1}{2}}(s^{\frac{1}{2}}+a)}$	Re s > o if Re a ≥ o Re s > Max o, Re a² if Re a < o
	4	$1-e^{a^2t}\mathrm{Erfc}(at^{\frac{1}{2}})$	$\frac{a}{s(s^{\frac{1}{2}}+a)}$	Re s > o if Re a ≥ o Re s > Max o, Re a² if Re a < o
	5	$2e^{a^2t}\mathrm{Erfc}(at^{\frac{1}{2}})-1$	$\frac{1}{s}\left(\frac{s^{\frac{1}{2}}-a}{s^{\frac{1}{2}}+a}\right)$	Re s > o if Re a ≥ o Re s > Max o, Re a² if Re a < o
	6	$t^{\frac{1}{2}}-\pi^{\frac{1}{2}}\,at\,e^{a^2t}\mathrm{Erfc}(at^{\frac{1}{2}})$	$\frac{\pi^{\frac{1}{2}}}{2s^{\frac{1}{2}}(a+s^{\frac{1}{2}})^2}$	Re s > o if Re a ≥ o Re s > Max o, Re a² if Re a < o
	7	$\frac{1}{t^{\frac{1}{2}}}-\pi^{\frac{1}{2}}\,a\,e^{a^2t}\mathrm{Erfc}(at^{\frac{1}{2}})$	$\frac{\pi^{\frac{1}{2}}}{s^{\frac{1}{2}}+a}$	Re s > o if Re a ≥ o Re s > Max o, Re a² if Re a < o
	8	$\frac{e^{-at}}{t^{\frac{1}{2}}}+(\pi a)^{\frac{1}{2}}\mathrm{Erf}[(at)^{\frac{1}{2}}]$	$\frac{[\pi(s+a)]^{\frac{1}{2}}}{s}$	Re s > Max o, −Re a
	9	$\frac{e^{-at}}{t^{\frac{1}{2}}}+\pi^{\frac{1}{2}}(a-b)^{\frac{1}{2}}e^{-bt}\mathrm{Erf}[(a-b)^{\frac{1}{2}}t^{\frac{1}{2}}]$	$\frac{[\pi(s+a)]^{\frac{1}{2}}}{s+b}$	Re s > Max − Re a, −Re b
	10	$t^{\frac{1}{2}}e^{-\frac{a}{t}}-(\pi a)^{\frac{1}{2}}\mathrm{Erfc}(\frac{a}{t})^{\frac{1}{2}}$	$\frac{\pi^{\frac{1}{2}}}{2}\;\frac{e^{-2a^{\frac{1}{2}}s^{\frac{1}{2}}}}{s^{\frac{1}{2}}}$	Re a ≥ o Re s > o

		$f(t)$	$g(s)$	
16.3.2 (Contd.)	11	$t^{\nu}e^{\frac{a^2}{t}}\mathrm{Erfc}(\frac{a}{t^{\frac{1}{2}}})$	$a^{\nu+1}\pi\sec[(\nu+1)\pi]s^{-\frac{\nu+1}{2}}$ $\cdot\,[H_{-\nu-1}(2as^{\frac{1}{2}})-Y_{-\nu-1}(2as^{\frac{1}{2}})]$	Re ν > $-\frac{3}{2}$ Re s > o
	12	$t^{\nu}e^{\frac{a^2}{t}}\mathrm{Erf}(\frac{ia}{t^{\frac{1}{2}}})$	$-i\pi a^{\nu+1}\sec[(\nu+1)\pi]s^{-\frac{\nu+1}{2}}$ $\cdot\,[L_{-\nu-1}(2as^{\frac{1}{2}})-I_{\nu+1}(2as^{\frac{1}{2}})]$	Re ν > $-\frac{3}{2}$ Re s > o
	13	$e^{-b^2t}\Big[e^{-iab}\mathrm{Erfc}\left(\frac{a}{2t^{\frac{1}{2}}}-ib\,t^{\frac{1}{2}}\right)$ $+\,e^{iab}\mathrm{Erfc}\left(\frac{a}{2t^{\frac{1}{2}}}+ib\,t^{\frac{1}{2}}\right)\Big]$	$\frac{2e^{-a\,s^{\frac{1}{2}}}}{s+b^2}$	Re a² ≥ o Re s > − Re b²
	14	$e^{a^2t}\mathrm{Erfc}\left(at^{\frac{1}{2}}+\frac{b}{t^{\frac{1}{2}}}\right)$	$\frac{e^{-2b(s^{\frac{1}{2}}+a)}}{s^{\frac{1}{2}}(s^{\frac{1}{2}}+a)}$	Re b² ≥ o Re s > o if Re a ≥ o Re s > Max o, Re a² if Re a < o
16.3.2.1	1	$(t+2a)\mathrm{Erfc}\left[\left(\frac{a}{t}\right)^{\frac{1}{2}}\right]-2\left(\frac{at}{\pi}\right)^{\frac{1}{2}}e^{-\frac{a}{t}}$	$\frac{e^{-2a^{\frac{1}{2}}s^{\frac{1}{2}}}}{s^2}$	Re a ≥ o Re s > o
	2	$1+(2a^2t-1)e^{a^2t}\mathrm{Erfc}(at^{\frac{1}{2}})-\frac{2a}{\pi^{\frac{1}{2}}}t^{\frac{1}{2}}$	$\frac{a^2}{s(a+s^{\frac{1}{2}})^2}$	Re s > o if Re a ≥ o Re s > Max o, Re a² if Re a < o
	3	$(2a^2t+1)e^{a^2t}\mathrm{Erfc}(at^{\frac{1}{2}})-2a(\frac{t}{\pi})^{\frac{1}{2}}$	$\frac{1}{(a+s^{\frac{1}{2}})^2}$	Re s > o if Re a ≥ o Re s > Max o, Re a² if Re a < o
	4	$(2a^2t+2)t^{\frac{1}{2}}-a\pi^{\frac{1}{2}}t(2a^2t+3)e^{a^2t}\mathrm{Erfc}(at^{\frac{1}{2}})$	$\frac{1}{(a+s^{\frac{1}{2}})^3}$	Re s > o if Re a ≥ o Re s > Max o, Re a² if Re a < o
	5	$t(2at^2+1)e^{a^2t}\mathrm{Erfc}(at^{\frac{1}{2}})-\frac{2a}{\pi^{\frac{1}{2}}}t^{\frac{3}{2}}$	$\frac{1}{s^{\frac{1}{2}}(a+s^{\frac{1}{2}})^3}$	Re s > o if Re a ≥ o Re s > Max o, Re a² if Re a < o
	6	$(2a^4t^2+5a^2t+1)e^{a^2t}\mathrm{Erfc}(at^{\frac{1}{2}})$ $-\frac{2}{\pi^{\frac{1}{2}}}at^{\frac{1}{2}}(a^2t+2)$	$\frac{s^{\frac{1}{2}}}{(a+s^{\frac{1}{2}})^3}$	Re s > o if Re a ≥ o Re s > Max o, Re a² if Re a < o

		f(t)	g(s)	
16.3.2.1 (Contd.)	7	$1-(2a^4t^2-a^2t+1)e^{a^2t}\mathrm{Erfc}(at^{\frac{1}{2}})+2(a^3t-a)\dfrac{t^{\frac{1}{2}}}{\pi^{\frac{1}{2}}}$	$\dfrac{a^3}{s(a+s^{\frac{1}{2}})^3}$	Re $s>0$ if Re $a\geq 0$ Re $s>$ Max 0, Re a^2 if Re $a<0$
	8	$t\left(\dfrac{4a^4}{3}t^2+4a^2t+1\right)e^{a^2t}\mathrm{Erfc}(at^{\frac{1}{2}})-\dfrac{2a^3}{3\pi^{\frac{1}{2}}}t^{\frac{3}{2}}(2a^2t+5)$	$\dfrac{1}{(a+s^{\frac{1}{2}})^4}$	Re $s>0$ if Re $a\geq 0$ Re $s>$ Max 0, Re a^2 if Re $a<0$
	9	$1-2(8a^4t^2+8a^2t+1)e^{a^2t}\mathrm{Erfc}(at^{\frac{1}{2}})+8a(2a^2t+1)\left(\frac{t}{\pi}\right)^{\frac{1}{2}}$	$\dfrac{1}{s}\left(\dfrac{a-s^{\frac{1}{2}}}{a+s^{\frac{1}{2}}}\right)^3$	Re $s>0$ if Re $a\geq 0$ Re $s>$ Max 0, Re a^2 if Re $a<0$
	10	$\mathrm{Erfc}\left(\dfrac{a}{t^{\frac{1}{2}}}\right)-e^{2ab+b^2t}\mathrm{Erfc}\left(\dfrac{a}{t^{\frac{1}{2}}}+bt^{\frac{1}{2}}\right)$	$\dfrac{b\,e^{-2as^{\frac{1}{2}}}}{s(s^{\frac{1}{2}}+b)}$	Re $s>0$ if Re $b\geq 0$ Re $s>$ Max 0, Re b^2 if Re $b<0$ Re $a^2\geq 0$
	11	$\dfrac{1}{t^{\frac{1}{2}}}e^{-\frac{a^2}{4t}}-\pi^{\frac{1}{2}}b\,e^{ab+b^2t}\mathrm{Erfc}\left(\dfrac{a}{2t^{\frac{1}{2}}}+bt^{\frac{1}{2}}\right)$	$\dfrac{\pi^{\frac{1}{2}}e^{-as^{\frac{1}{2}}}}{s^{\frac{1}{2}}+b}$	Re $s>0$ if Re $b\geq 0$ Re $s>$ Max 0, Re b^2 if Re $b<0$ Re $a^2\geq 0$
	12	$\dfrac{2t^{\frac{1}{2}}}{\pi^{\frac{1}{2}}}e^{-\frac{a^2}{4t}}-(2bt+a)e^{ab+b^2t}\,\cdot$ $\cdot\ \mathrm{Erfc}\left(\dfrac{a}{2t^{\frac{1}{2}}}+bt^{\frac{1}{2}}\right)$	$\dfrac{e^{-as^{\frac{1}{2}}}}{s^{\frac{1}{2}}(b+s^{\frac{1}{2}})^2}$	Re $s>0$ if Re $b\geq 0$ Re $s>$ Max 0, Re b^2 if Re $b<0$
	13	$\mathrm{Erfc}\left(\dfrac{a}{2t^{\frac{1}{2}}}\right)-\dfrac{2bt^{\frac{1}{2}}}{\pi^{\frac{1}{2}}}e^{-\frac{a^2}{4t}}$ $+(2b^2t+ab-1)e^{ab+b^2t}\mathrm{Erfc}\left(\dfrac{a}{2t^{\frac{1}{2}}}+bt^{\frac{1}{2}}\right)$	$\dfrac{b^2e^{-as^{\frac{1}{2}}}}{s(b+s^{\frac{1}{2}})^2}$	Re $s>0$ if Re $b\geq 0$ Re $s>$ Max 0, Re b^2 if Re $b<0$
	14	$(2bt^2+ab+1)e^{ab+b^2t}\mathrm{Erfc}\left(\dfrac{a}{2t^{\frac{1}{2}}}+bt^{\frac{1}{2}}\right)-\dfrac{2bt^{\frac{1}{2}}}{\pi^{\frac{1}{2}}}e^{-\frac{a^2}{4t}}$	$\dfrac{e^{-as^{\frac{1}{2}}}}{(b+s^{\frac{1}{2}})^2}$	Re $s>0$ if Re $b\geq 0$ Re $s>$ Max 0, Re b^2 if Re $b<0$
17	1	$C(at)$	$\dfrac{a^{\frac{1}{2}}[(s^2+a^2)^{\frac{1}{2}}+s]^{\frac{1}{2}}}{2s(s^2+a^2)^{\frac{1}{2}}}$	Re $s>0$
	2	$S(at)$	$\dfrac{a^{\frac{1}{2}}[(s^2+a^2)^{\frac{1}{2}}-s]^{\frac{1}{2}}}{2s(s^2+a^2)^{\frac{1}{2}}}$	Re $s>0$
	3	$tS(at)$	$\dfrac{a^{\frac{1}{2}}[(s^2+a^2)^{\frac{1}{2}}-s]^{\frac{1}{2}}}{2s^2(s^2+a^2)^{\frac{1}{2}}}\left[\dfrac{s}{2(s^2+a^2)^{\frac{1}{2}}}+\dfrac{s^2}{s^2+a^2}+1\right]$	Re $s>0$

		f(t)	g(s)	
17.1	1	$C(at^2)$	$\dfrac{1}{s}\left[\cos\dfrac{s^2}{4a}\left\{\dfrac{1}{2}-S\left(\dfrac{s^2}{4a}\right)\right\}-\sin\dfrac{s^2}{4a}\left\{\dfrac{1}{2}-C\left(\dfrac{s^2}{4a}\right)\right\}\right]$	Re $s>0$
	2	$S(at^2)$	$\dfrac{1}{s}\left[\cos\dfrac{s^2}{4a}\left\{\dfrac{1}{2}-C\left(\dfrac{s^2}{4a}\right)\right\}+\sin\dfrac{s^2}{4a}\left\{\dfrac{1}{2}-S\left(\dfrac{s^2}{4a}\right)\right\}\right]$	Re $s>0$
18	1	$\mathrm{Si}(at)$	$\dfrac{1}{s}\cot^{-1}\dfrac{s}{a}$	Re $s>0$
	2	$\mathrm{Ci}(at)$	$-\dfrac{1}{2s}\log\left(1+\dfrac{s^2}{a^2}\right)$	Re $s>0$
	3	$\mathrm{ci}(at)$	$\dfrac{1}{2s}\log\left(1+\dfrac{s^2}{a^2}\right)$	Re $s>0$
	4	$\mathrm{si}(at)$	$-\dfrac{1}{s}\tan^{-1}\dfrac{s}{a}$	Re $s>\lvert\mathrm{Im}\,a\rvert$
18.1	1	$\mathrm{Si}(at^2)$	$\dfrac{\pi}{s}\left\{\left[\dfrac{1}{2}-C\left(\dfrac{s^2}{4a}\right)\right]^2+\left[\dfrac{1}{2}-S\left(\dfrac{s^2}{4a}\right)\right]^2\right\}$	Re $s>0$
18.5	1	$\sin(at)\,\mathrm{ci}(bt)$	$-b\,\dfrac{s\tan^{-1}\dfrac{2as}{s^2+b^2-a^2}-\dfrac{a}{2}\log\dfrac{(s^2+b^2-a^2)^2+4a^2s^2}{b^2}}{2(s^2+a^2)}$	$b\neq 0$ Re $s>\lvert\mathrm{Im}\,a\rvert$
	2	$\cos(at)\,\mathrm{si}(bt)$	$-b\,\dfrac{s\tan^{-1}\dfrac{2bs}{b^2-a^2-s^2}+\dfrac{a}{2}\log\dfrac{(b+a)^2+s^2}{(b-a)^2+s^2}}{2(s^2+a^2)}$	$b\neq 0$ Re $s>\lvert\mathrm{Im}\,a\rvert$
	3	$\cos t\,\mathrm{ci}(t)$	$\dfrac{\tan^{-1}\frac{2}{s}+\frac{s}{2}\log[s^2(s^2+4)]}{2(s^2+1)}$	Re $s>0$
	4	$\sin t\,\mathrm{si}(t)+\cos t\,\mathrm{ci}(t)$	$\dfrac{\frac{s}{2}\log(s^2+4)+\tan^{-1}\frac{2}{s}}{s^2+1}$	Re $s>0$
	5	$\sin t\,\mathrm{ci}(t)-\cos t\,\mathrm{si}(t)$	$\dfrac{\frac{1}{2}\log(s^2+4)-s\tan^{-1}\frac{2}{s}}{s^2+1}$	Re $s>0$
	6	$\cos t\,\mathrm{si}(t)+\sin t\,\mathrm{ci}(t)$	$\dfrac{\log s}{s^2+1}$	Re $s>0$

		$f(t)$	$g(s)$	
18.5 (Contd.)	7	$\sin t\, si(t) - \cos t\, ci(t)$	$-\frac{s\log s}{s^2+1}$	$\mathrm{Re}\, s > o$
	8	$\sin(at)Si(at) + \cos(at)Ci(at)$	$-\frac{s\log\frac{s}{a}}{s^2+a^2}$	$\mathrm{Re}\, s > o$
	9	$\cos(at)Si(at) - \sin(at)Ci(at)$	$\frac{a\log\frac{s}{a}}{s^2+a^2}$	$\mathrm{Re}\, s > o$
	10	$\cos(at)Si(at) + \sin(at)[\log a - Ci(at)]$	$\frac{a\log s}{s^2+a^2}$	$\mathrm{Re}\, s > o$
	11	$\cos(at)[\log a - Ci(at)] - \sin(at)Si(at)$	$\frac{s\log s}{s^2+a^2}$	$\mathrm{Re}\, s > o$
	12	$t[\log a + \frac{\sin(at)}{at} + ci(at)]$	$\frac{\log(s^2+a^2)}{2s^2}$	$\mathrm{Re}\, a > o$ $\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
18.5.4	1	$\sin(at)[\log\frac{2a}{\gamma t} - Ci(2at)] + \cos(at)Si(at)$	$\frac{a\log(s^2+a^2)}{s^2+a^2}$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
	2	$\cos(at)[\log\frac{2a}{\gamma t} - Ci(2at)] - \sin(at)Si(2at)$	$\frac{s\log(s^2+a^2)}{s^2+a^2}$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
19	1	$Ei(-at)$	$-\frac{1}{s}\log(\frac{s}{a}+1)$	$\lvert\arg a\rvert < \pi$ $\mathrm{Re}\, s > o$
	2	$\overline{Ei}(at)$	$-\frac{1}{s}\log(\frac{s}{a}-1)$	$\mathrm{Re}\, a > o$ $\mathrm{Re}\, s > \mathrm{Re}\, a$
19.2	1	$\frac{1}{t^{\frac{1}{2}}}Ei(-at)$	$-2(\frac{\pi}{s})^{\frac{1}{2}}\log[(\frac{s}{a})^{\frac{1}{2}}+(\frac{s}{a}+1)^{\frac{1}{2}}]$	$\lvert\arg a\rvert < \pi$ $\mathrm{Re}\, s > o$
19.3	1	$e^{-bt}[\log a - Ei(-at)]$	$\frac{\log(s+a+b)}{s+b}$	$\lvert\arg a\rvert < \pi$ $\mathrm{Re}\, s > -\mathrm{Re}\, b$
19.3.2	1	$\frac{1}{t^{\frac{1}{2}}}e^{-bt}[\log a - Ei(-at)]$	$\frac{2\pi^{\frac{1}{2}}\log[(s+a+b)^{\frac{1}{2}}+(s+b)^{\frac{1}{2}}]}{(s+b)^{\frac{1}{2}}}$	$\lvert\arg a\rvert < \pi$ $\mathrm{Re}\, s > -\mathrm{Re}\, b$

		$f(t)$	$g(s)$	
19.5	1	$\sin t\,\overline{Ei}(t)$	$\frac{s\tan^{-1}\frac{1}{s-1}-\frac{1}{2}\log(s^2-2s+2)}{s^2+1}$	$\mathrm{Re}\, s > 1$
	2	$\cos t\,\overline{Ei}(t)$	$-\frac{\tan^{-1}\frac{1}{s-1}+\frac{s}{2}\log(s^2-2s+2)}{s^2+1}$	$\mathrm{Re}\, s > 1$
	3	$\sin(at)Ei(-t)$	$\frac{s\tan^{-1}\frac{a}{s+1}-\frac{a}{2}\log[(s+1)^2+a^2]}{s^2+a^2}$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
	4	$\cos(at)Ei(-t)$	$-\frac{a\tan^{-1}\frac{a}{s+1}+\frac{s}{2}\log[(s+1)^2+a^2]}{s^2+a^2}$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
19.12.3	1	$e^{t}I_0(bt)Ei(-t)$	$-\frac{2\log\frac{[(s+b)^{\frac{1}{2}}+1][(s-b)^{\frac{1}{2}}+1]+(s+b-1)^{\frac{1}{2}}(s-b-1)^{\frac{1}{2}}}{[(s+b)^{\frac{1}{2}}+1][(s-b)^{\frac{1}{2}}+1]-(s+b-1)^{\frac{1}{2}}(s-b-1)^{\frac{1}{2}}}}{(s+b-1)^{\frac{1}{2}}(s-b-1)^{\frac{1}{2}}}$	$\mathrm{Re}\, s > 1+\lvert\mathrm{Re}\, b\rvert$
20.3	1	$li(e^{at})$	$-\frac{1}{s}\log(\frac{s}{a}-1)$	$\mathrm{Re}\, s > \mathrm{Re}\, a$
	2	$li(e^{-at})$	$-\frac{1}{s}\log(\frac{s}{a}+1)$	$\mathrm{Re}\, s > o$
21	1	$\Gamma(\nu, at)$	$\frac{\Gamma(\nu)}{s}[1-(1+\frac{s}{a})^{-\nu}]$	$\mathrm{Re}\,\nu > o$ $\mathrm{Re}\, s > -\mathrm{Re}\, a$
	2	$\Gamma(\nu, \frac{a}{t})$	$2a^{\frac{\nu}{2}}s^{\frac{\nu}{2}-1}K_\nu(2a^{\frac{1}{2}}s^{\frac{1}{2}})$	$\lvert\arg a\rvert < \frac{\pi}{2}$ $\mathrm{Re}\, s > o$
21.1	1	$\gamma(\frac{1}{4}, \frac{t^2}{a})$	$a^{\frac{1}{4}}s^{-\frac{1}{2}}e^{\frac{as^2}{8}}K_{\frac{1}{4}}(\frac{as^2}{8})$	$\mathrm{Re}\, a > o$ $\mathrm{Re}\, s > o$
	2	$\gamma\left(\nu, \frac{t^2}{2a^2}\right)$	$\frac{\Gamma(2\nu)}{2^{\nu+1}s}e^{\frac{a^2s^2}{4}}D_{-2\nu}(as)$	$\mathrm{Re}\,\nu > o$ $\lvert\arg a\rvert < \frac{\pi}{4}$ $\mathrm{Re}\, s > o$
21.2	1	$\binom{t}{n}t^{\nu-1}$	$\frac{\Gamma(\nu)}{s^\nu}\vartheta_n(\nu,\frac{1}{s})$ where $\sum_{n=0}^{\infty}x^n\vartheta_n(\nu,\frac{1}{s}) = [1-\frac{1}{s}\log(x+1)]^{-\nu}$	$\mathrm{Re}\,\nu > o$ $\mathrm{Re}\, s > o$

		$f(t)$	$g(s)$	
21.3	1	$e^{bt}\gamma(\nu,at)$	$\dfrac{\Gamma(\nu)a^{\nu}}{(s-b)(s+a-b)^{\nu}}$	$\mathrm{Re}\,\nu > 0$ $\mathrm{Re}\,s > \mathrm{Re}\,b,\ \mathrm{Re}(b-a)$
	2	$e^{at}\Gamma(\nu,at)$	$\Gamma(\nu)\dfrac{1-(\frac{a}{s})^{\nu}}{s-a}$	$\mathrm{Re}\,\nu > 0$ $\mathrm{Re}\,s > 0$
	3	$\psi(e^{t})$	$-\dfrac{\zeta'(s)}{s\zeta(s)}$	$\mathrm{Re}\,s > 1$
21.3.1	1	$e^{-\frac{t^2}{a}}\gamma(\nu,\frac{e^{i\pi}t^2}{a})$	$\dfrac{\Gamma(2\nu)}{2^{2\nu}}a^{\frac{1}{2}}e^{\frac{as^2}{4}+\nu\pi i}\Gamma(\frac{1}{2}-\nu,\frac{as^2}{4})$	$\lvert\arg a\rvert < \frac{\pi}{2}$ $\mathrm{Re}\,\nu > 0$ $\mathrm{Re}\,s > 0$
	2	$\int_0^{\infty}\dfrac{t^{u-1}}{\Gamma(u)}du$	$\dfrac{1}{\log s}$	$\mathrm{Re}\,s > 1$
	3	$\sum_{n=1}^{\infty} n\int_{(2n-1)a}^{(2n+1)a}\dfrac{t^{u-1}}{\Gamma(u)}du$	$\dfrac{s^{a}}{(s^{2a}-1)\log s}$	$\mathrm{Re}\,a > 0$ $\mathrm{Re}\,s > 1$
	4	$\sum_{n=1}^{\infty}\int_{(4n-3)a}^{(4n-1)a}\dfrac{t^{u-1}}{\Gamma(u)}du$	$\dfrac{s^{a}}{(s^{2a}+1)\log s}$	$\mathrm{Re}\,a > 0$ $\mathrm{Re}\,s > 1$
	5	$\sum_{n=1}^{\infty}(2n-1)\int_{(n-1)a}^{na}\dfrac{t^{u-1}}{\Gamma(u)}du$	$\dfrac{s^{a}+1}{(s^{a}-1)\log s}$	$\mathrm{Re}\,a > 0$ $\mathrm{Re}\,s > 1$
	6	$\sum_{n=1}^{\infty}\left[\int_{(4n-7)a}^{(4n-5)a}\dfrac{t^{u-1}}{\Gamma(u)}du-\int_{(4n-3)a}^{(4n-1)a}\dfrac{t^{u-1}}{\Gamma(u)}du\right]$	$\dfrac{s^{a}(s^{2a}-1)}{(s^{4a}+1)\log s}$	$\mathrm{Re}\,a > 0$ $\mathrm{Re}\,s > 1$
	7	$\sum_{n=1}^{\infty}\left[\int_{(2n-2)a}^{(2n-1)a}\dfrac{t^{u-1}}{\Gamma(u)}du-\int_{(2n-1)a}^{2na}\dfrac{t^{u-1}}{\Gamma(u)}du\right]$	$\dfrac{s^{a}-1}{(s^{a}+1)\log s}$	$\mathrm{Re}\,a > 0$ $\mathrm{Re}\,s > 1$
	8	$\int_a^{\infty}\dfrac{t^{u-1}}{\Gamma(u)}du$	$\dfrac{1}{s^{a}\log s}$	$\mathrm{Re}\,a > 0$ $\mathrm{Re}\,s > 1$

		$f(t)$	$g(s)$	
21.3.2	1	$t^{\mu}e^{\frac{a}{t}}\Gamma(\nu,\frac{a}{t})$	$2^{3+\mu-2\nu}\Gamma(2+\mu-\nu)(\frac{a}{s})^{\frac{\mu+1}{2}}S_{2\nu-\mu-2,\mu+1}(2a^{\frac{1}{2}}s^{\frac{1}{2}})$	$\mathrm{Re}(\nu-\mu) < 2$ $\lvert\arg a\rvert < \pi$ $\mathrm{Re}\,s > 0$
21.3.2.1	1	$\int_0^{2}\dfrac{t^{u-1}du}{\Gamma(u)u^{\frac{1}{2}}(2-u)^{\frac{1}{2}}}$	$\frac{\pi}{s}I_0(\log s)$	$\mathrm{Re}\,s > -\infty$
23.1	1	$\dfrac{P_{\nu}\left[\frac{2}{(1+at)^2}-1\right]}{1+at}$	$\frac{1}{s}e^{\frac{s}{a}}W_{\nu+\frac{1}{2},0}(\frac{s}{a})W_{-\nu-\frac{1}{2},0}(\frac{s}{a})$	$\mathrm{Re}\,s > 0$
23.2	1	$t^{\frac{1}{2}}P_{\nu}^{\frac{1}{4}}[(1+a^2t^2)^{\frac{1}{2}}]P_{\nu}^{-\frac{1}{4}}[(1+a^2t^2)^{\frac{1}{2}}]$	$\dfrac{\pi^{\frac{1}{2}}}{2^{\frac{3}{2}}as^{\frac{1}{2}}}H_{\nu+\frac{1}{2}}^{(1)}(\frac{s}{2a})H_{\nu+\frac{1}{2}}^{(2)}(\frac{s}{2a})$	$\mathrm{Re}\,s > 0$
	2	$\dfrac{P_{\nu}^{\mu}[(1+at)^{\frac{1}{2}}]}{t^{\frac{\mu}{2}}(1+at)^{\frac{1}{2}}}$	$2^{\mu}a^{-\frac{1}{4}}s^{\frac{\mu}{2}-\frac{3}{4}}e^{\frac{s}{2a}}W_{\frac{\mu}{2}-\frac{1}{4},\frac{\nu}{2}+\frac{1}{4}}(\frac{s}{a})$	$\mathrm{Re}\,\mu < 1$ $\mathrm{Re}\,s > 0$
	3	$\dfrac{1}{t^{\frac{\mu}{2}}}P_{\nu}^{\mu}[(1+at)^{\frac{1}{2}}]$	$2^{\mu}a^{\frac{1}{4}}s^{\frac{\mu}{2}-\frac{5}{4}}e^{\frac{s}{2a}}W_{\frac{\mu}{2}+\frac{1}{4},\frac{\nu}{2}+\frac{1}{4}}(\frac{s}{a})$	$\mathrm{Re}\,\mu < 1$ $\mathrm{Re}\,s > 0$
	4	$\dfrac{(b+t)^{\frac{\nu}{2}}(-1-\frac{a+b}{t})^{\frac{\mu}{2}}}{(a+t)^{\frac{\nu}{2}+\frac{1}{2}}}P_{\nu}^{\mu}\left[\left\{\frac{ab}{(a+t)(b+t)}\right\}^{\frac{1}{2}}\right]$	$(\frac{2}{s})^{\frac{1}{2}}e^{\frac{a+b}{2}s}D_{\mu-\nu-1}\left[(2as)^{\frac{1}{2}}\right]D_{\mu+\nu}\left[(2bs)^{\frac{1}{2}}\right]$	$\lvert\arg a\rvert < \pi$ $\lvert\arg b\rvert < \pi$ $\mathrm{Re}\,\mu < 1$ $\lvert\arg(as)\rvert < \pi$ $\lvert\arg(bs)\rvert < \pi$ $\mathrm{Re}\,s > 0$
23.2.1	1	$\dfrac{P_{\nu}^{\mu}(1+\frac{t}{a})}{(t^2+2at)^{\frac{\mu}{2}}}$	$\left(\frac{2a}{\pi}\right)^{\frac{1}{2}}s^{\mu-\frac{1}{2}}e^{as}K_{\nu+\frac{1}{2}}(as)$	$\mathrm{Re}\,\mu < 1$ $\lvert\arg a\rvert < \pi$ $\mathrm{Re}\,s > 0$
	2	$(1+\frac{2a}{t})^{\frac{\nu}{2}}P_{\mu}^{\nu}(1+\frac{t}{a})$	$\frac{1}{s}e^{as}W_{\nu,\mu+\frac{1}{2}}(2as)$	$\lvert\arg a\rvert < \pi$ $\mathrm{Re}\,\nu < 1$ $\mathrm{Re}\,s > 0$
	3	$t^{b+\frac{\mu}{2}-1}(at+1)^{\frac{\mu}{2}}P_{\nu}^{-\mu}(1+at)$	$-\dfrac{\sin(\nu\pi)}{\pi}a^{\frac{\mu}{2}}\dfrac{E(-\nu,\nu+1,b+\mu:\mu+1:\frac{2s}{a})}{s^{b+\mu}}$	$\mathrm{Re}(b+\mu) > 0$ $\mathrm{Re}\,s > 0$

		f(t)	g(s)	
23.2.1 (Contd.)	4	$t^{b-\frac{\mu}{2}-1}(at+2)^{-\frac{\mu}{2}}P_\nu^{-\mu}(1+at)$	$\dfrac{a^{\frac{\mu}{2}}E(\mu+\nu+1,\mu-\nu,b:\mu+1:\frac{2s}{a})}{2^{\mu}s^{b}\Gamma(\mu+\nu+1)\Gamma(\mu-\nu)}$	Re b > 0 Re s > 0
	5	$t^{a+\frac{\mu}{2}-1}(t+2)^{\frac{\mu}{2}}Q_\nu^{\mu}(1+t)$	$\dfrac{\Gamma(\nu+\mu+1)}{\Gamma(\nu-\mu+1)}\left\{\dfrac{\sin(\nu\pi)}{2s^{a+\mu}\sin(\mu\pi)}E(-\nu,\nu+1,a+\mu:\mu+1:2s) - \dfrac{\sin[(\mu+\nu)\pi]}{2^{1-\mu}s^{a}\sin(\mu\pi)}E(\nu-\mu+1,-\nu-\mu,a:1-\mu:2s)\right\}$	Re a > 0 Re(a+μ) > 0 Re s > 0
	6	$t^{a-\frac{\mu}{2}-1}(t+2)^{\frac{\mu}{2}}Q_\nu^{\mu}(1+t)$	$-\dfrac{\sin(\nu\pi)}{2s^{a-\mu}\sin(\mu\pi)}E(-\nu,\nu+1,a-\mu:1-\mu:2s) - \dfrac{\sin[(\mu-\nu)\pi]}{2^{1+\mu}s^{a}\sin(\mu\pi)}E(\mu+\nu+1,\mu-\nu,a:1+\mu:2s)$	Re a > 0 Re(a−μ) > 0 Re s > 0
	7	$[(a+t)(b+t)]^{\frac{\nu}{2}}P_\nu\left[\frac{2(a+t)(b+t)}{ab}-1\right]$	$\frac{1}{\pi}(ab)^{\frac{\nu+1}{2}}e^{\frac{a+b}{2}s}K_{\nu+\frac12}(\frac{as}{2})K_{\nu+\frac12}(\frac{bs}{2})$	|arg a| < π |arg b| < π |arg as| < π |arg bs| < π
23.3	1	$\dfrac{(1-a^2+a^2e^{-t})^{\mu}}{(1-e^{-t})^{\frac12}}\left\{P_{2\nu}^{2\mu}\left[a(1-e^{-t})^{\frac12}\right] + P_{2\nu}^{2\mu}\left[-a(1-e^{-t})^{\frac12}\right]\right\}$	$\dfrac{2^{2\mu+1}\pi\Gamma(s)\,{}_2F_1[-\mu-\nu,\frac12-\mu+\nu;s+\frac12;a^2]}{\Gamma(\frac12-\mu-\nu)\Gamma(1-\mu+\nu)\Gamma(s+\frac12)}$	|a| < 1 Re s > 0
	2	$(1-a^2+a^2e^{-t})^{\mu}\left\{P_{2\nu}^{2\mu}\left[a(1-e^{-t})^{\frac12}\right] - P_{2\nu}^{2\mu}\left[-a(1-e^{-t})^{\frac12}\right]\right\}$	$-\dfrac{2^{2\mu+1}\pi a\Gamma(s)\,{}_2F_1[\frac12-\mu-\nu,\nu-\mu+1;s+\frac32;a^2]}{\Gamma(\frac12-\mu+\nu)\Gamma(-\mu-\nu)\Gamma(s+\frac32)}$	|a| < 1 Re s > 0
	3	$\left[(e^t-1)\left(\frac{ae^t}{a-2}-1\right)\right]^{\frac{\mu}{2}}P_\nu^{-\mu}(ae^t-a+1)$	$\dfrac{\Gamma(s-\mu+\nu+1)\Gamma(s-\nu-\mu)}{\Gamma(s+1)}\left(\dfrac{a}{a-2}\right)^{\frac{s}{2}}P_\nu^{\mu-s}(a-1)$	Re a > 0 Re μ > −1 Re s > Max Re(μ−ν)−1, Re(μ+ν)

		f(t)	g(s)	
23.3 (Contd.)	4	$(1-e^{-2t})^{\frac{\mu}{2}}P_\nu^{-\mu}(e^t)$	$\dfrac{2^{s-1}\Gamma(\frac{s+\nu+1}{2})\Gamma(\frac{s-\nu}{2})}{\pi^{\frac12}\Gamma(s+\mu+1)}$	Re s > Max Re ν, (−1−Re ν) Re μ > −1
23.7	1	$\sinh^{2\mu}(\frac{t}{2})P_{2n}^{-2\mu}(\cosh\frac{t}{2})$	$\dfrac{\Gamma(2\mu+\frac12)\Gamma(s-n-\mu)\Gamma(s+n-\mu+\frac12)}{4^{\mu}\pi^{\frac12}\Gamma(s+n+\mu+1)\Gamma(s-n+\mu+\frac12)}$	Re μ > $-\frac12$ n = 0, 1, 2, ... Re s > n + Re μ
24	1	$\ker t + i\,\mathrm{kei}\,t + \frac{\pi}{4}\,\mathrm{ber}\,t + i\frac{\pi}{4}\,\mathrm{bei}\,t$	$\dfrac{\log[s+(s^2-i)^{\frac12}]}{(s^2-i)^{\frac12}}$	Re s > $2^{-\frac12}$
	2	$t[\ker(at) + i\,\mathrm{kei}(at)]$	$\dfrac{s\log\frac{i^{-\frac12}[s+(s^2-ia^2)^{\frac12}]}{a}}{(s^2-ia^2)^{\frac32}} - \dfrac{1}{s^2-ia^2}$	Re$(s \pm ai^{\frac12}) > 0$
	3	$\mathrm{ber}(at)$	$\left[\dfrac{1}{2(s^4+a^4)^{\frac12}} + \dfrac{s^2}{2(s^4+a^4)}\right]^{\frac12}$	Re s > $\dfrac{\lvert \mathrm{Re}\,a\rvert + \lvert \mathrm{Im}\,a\rvert}{2^{\frac12}}$
	4	$\mathrm{bei}(at)$	$\left[\dfrac{1}{2(s^4+a^4)^{\frac12}} - \dfrac{s^2}{2(s^4+a^4)}\right]^{\frac12}$	Re s > $\dfrac{\lvert \mathrm{Re}\,a\rvert + \lvert \mathrm{Im}\,a\rvert}{2^{\frac12}}$
	5	$\mathrm{ber}(at)\cdot\mathrm{bei}(at)$	$\dfrac{a^2}{2(s^4+a^4)}$	Re s > $\dfrac{\lvert \mathrm{Re}\,a\rvert + \lvert \mathrm{Im}\,a\rvert}{2^{\frac12}}$
	6	$t[\ker_1(at) + i\,\mathrm{kei}_1(at)]$	$\dfrac{s}{ai^{\frac12}(s^2-ia^2)} - \dfrac{ai^{\frac12}}{(s^2-ia^2)^{\frac32}}\log\dfrac{s+(s^2-ia^2)^{\frac12}}{ai^{\frac12}}$	Re$(s \pm ai^{\frac12}) > 0$
	7	$\ker_\nu(at) + i\,\mathrm{kei}_\nu(at)$	$\dfrac{\pi\,\mathrm{cosec}(\nu\pi)}{2(s^2-ia^2)^{\frac12}a^{\nu}e^{\frac{i\pi\nu}{4}}}\left\{[s+(s^2-ia)^{\frac12}]^{\nu} - [s-(s^2-ia^2)^{\frac12}]^{\nu}\right\}$	|Re ν| < 1 Re s > $\dfrac{\lvert \mathrm{Re}\,a\rvert}{2^{\frac12}}$
	8	$\mathrm{ber}_\nu(at) + i\,\mathrm{bei}_\nu(at)$	$\dfrac{a^{\nu}e^{\frac{3i\pi\nu}{4}}}{(s^2-ia^2)^{\frac12}[s+(s^2-ia^2)^{\frac12}]^{\nu}}$	Re ν > −1 Re s > $\dfrac{\lvert \mathrm{Re}\,a\rvert}{2^{\frac12}}$

		$f(t)$	$g(s)$	
24.2	1	$\mathrm{ber}(at^{\frac{1}{2}})$	$\frac{1}{s}\cos\frac{a^2}{4s}$	$\mathrm{Re}\, s > 0$
	2	$\mathrm{bei}(at^{\frac{1}{2}})$	$\frac{1}{s}\sin\frac{a^2}{4s}$	$\mathrm{Re}\, s > 0$
	3	$t^{\frac{\nu}{2}}\,\mathrm{ber}_\nu(at^{\frac{1}{2}})$	$\frac{a^\nu}{2^\nu s^{\nu+1}}\cos\left(\frac{a^2+3\nu\pi s}{4s}\right)$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\, s > 0$
	4	$t^{\frac{\nu}{2}}\,\mathrm{bei}_\nu(at^{\frac{1}{2}})$	$\frac{a^\nu}{2^\nu s^{\nu+1}}\sin\left(\frac{a^2+3\nu\pi s}{4s}\right)$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\, s > 0$
	5	$V_\nu^{(b)}(at^{\frac{1}{2}})$	$\frac{16s}{a^4}\,I_\nu\left(\frac{a^2}{2s}\right)$	$\mathrm{Re}\,\nu > 0$ $\mathrm{Re}\, s > 0$
	6	$t^{\frac{1}{2}}\,W_\nu^{(b)}(at^{\frac{1}{2}})$	$\frac{a}{2s^2}\,I_\nu\left(\frac{a^2}{2s}\right)$	$\mathrm{Re}\,\nu > -2$ $\mathrm{Re}\, s > 0$
	7	$X_\nu^{(b)}(at^{\frac{1}{2}})$	$s^{-1}\,I_\nu\left(\frac{a^2}{2s}\right)$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\, s > 0$
	8	$\frac{1}{t^{\frac{1}{2}}}\,Z_\nu^{(b)}(at^{\frac{1}{2}})$	$\frac{2}{a}\,I_\nu\left(\frac{a^2}{2s}\right)$	$\mathrm{Re}\,\nu > 0$ $\mathrm{Re}\, s > 0$
	9	$t^{\frac{\nu}{2}}\left[\cos\frac{3\pi\nu}{4}\,\mathrm{bei}_\nu(at^{\frac{1}{2}}) - \sin\frac{3\pi\nu}{4}\,\mathrm{ber}_\nu(at^{\frac{1}{2}})\right]$	$\left(\frac{a}{2}\right)^\nu s^{-\nu-1}\sin\frac{a^2}{4s}$	$\mathrm{Re}\,\nu > -2$ $\mathrm{Re}\, s > 0$
	10	$t^{\frac{\nu}{2}}\left[\cos\frac{3\pi\nu}{4}\,\mathrm{ber}_\nu(at^{\frac{1}{2}}) + \sin\frac{3\pi\nu}{4}\,\mathrm{bei}_\nu(at^{\frac{1}{2}})\right]$	$\left(\frac{a}{2}\right)^\nu s^{-\nu-1}\cos\frac{a^2}{4s}$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\, s > 0$
	11	$\frac{d^n}{dt^n}\,X_\nu^{(b)}(2t^{\frac{1}{2}})$	$s^{n-1}\,I_\nu\left(\frac{2}{s}\right)$	$\mathrm{Re}\,\nu > n-1$ $n = 0,1,2,\ldots$ $\mathrm{Re}\, s > 0$
24.12	1	$\mathrm{ker}(at) + i\,\mathrm{kei}(at) + \frac{\pi}{4}\,\mathrm{ber}(at)$ $+ i\frac{\pi}{4}\,\mathrm{bei}(at) + \log a \,.\, I_0(ai^{\frac{1}{2}}t)$	$\frac{\log\left[s+(s^2-ia^2)^{\frac{1}{2}}\right]}{(s^2-ia^2)^{\frac{1}{2}}}$	$\mathrm{Re}\, s > \frac{\lvert\mathrm{Re}\, a\rvert + \lvert\mathrm{Im}\, a\rvert}{2^{\frac{1}{2}}}$

		$f(t)$	$g(s)$	
25	1	$H_0(at)$	$\frac{2\log\left[\frac{(s^2+a^2)^{\frac{1}{2}}}{s}+\frac{a}{s}\right]}{\pi(s^2+a^2)^{\frac{1}{2}}}$ $= \frac{2\sinh^{-1}\frac{a}{s}}{\pi(s^2+a^2)^{\frac{1}{2}}}$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
	2	$H_{\frac{1}{2}}(at)$	$\left(\frac{2}{as}\right)^{\frac{1}{2}} - \frac{\left[s+(s^2+a^2)^{\frac{1}{2}}\right]^{\frac{1}{2}}}{a^{\frac{1}{2}}(s^2+a^2)^{\frac{1}{2}}}$	$\mathrm{Re}\, a > 0$ $\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
	3	$H_1(at)$	$\frac{2}{\pi}\left[\frac{1}{a} - \frac{s}{a(s^2+a^2)^{\frac{1}{2}}}\log\frac{(s^2+a^2)^{\frac{1}{2}}+a}{s}\right]$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
	4	$\frac{1}{t}H_1(at)$	$\frac{2}{\pi}\left[-1 + \frac{(s^2+a^2)^{\frac{1}{2}}}{a}\log\frac{(s^2+a^2)^{\frac{1}{2}}+a}{s}\right]$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
	5	$H_2(at)$	$\frac{2}{\pi}\left[-\frac{2}{a} + \frac{s}{3a^2} + \frac{a^2+2s^2}{a^2(s^2+a^2)^{\frac{1}{2}}}\log\frac{(s^2+a^2)^{\frac{1}{2}}+a}{s}\right]$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
	6	$\frac{1}{t}H_2(at)$	$\frac{2}{\pi}\left[\frac{s}{a} + \frac{a}{3s} - \frac{(s^2+a^2)^{\frac{1}{2}}}{a}\log\frac{(s^2+a^2)^{\frac{1}{2}}+a}{s}\right]$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
	7	$H_3(at)$	$\frac{2}{\pi}\left[\frac{1}{3s} + \frac{4s}{a^2} + \frac{2a^2}{15s^3}\right] - \frac{6a^2s+8s^3}{\pi a^3(s^2+a^2)^{\frac{1}{2}}}\log\frac{(s^2+a^2)^{\frac{1}{2}}+a}{s}$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
	8	$\frac{1}{t}H_3(at)$	$\frac{2}{\pi}\left[\frac{a^2}{15s^2} - \frac{4s^2}{3a^2} - \frac{7}{9} + \frac{(4s^2+a^2)(s^2+a^2)^{\frac{1}{2}}}{3a^3}\log\frac{(s^2+a^2)^{\frac{1}{2}}+a}{s}\right]$	$\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
	9	$H_{-n-\frac{1}{2}}(at)$	$\frac{(-1)^n\left[(s^2+a^2)^{\frac{1}{2}}-s\right]^{n+\frac{1}{2}}}{a^{n+\frac{1}{2}}(s^2+a^2)^{\frac{1}{2}}}$	$n = 0,1,2,\ldots$ $\mathrm{Re}\, s > \lvert\mathrm{Im}\, a\rvert$
	10	$L_0(at)$	$\frac{2}{\pi(s^2-a^2)^{\frac{1}{2}}}\sin^{-1}\frac{a}{s}$	$\mathrm{Re}\, s > \lvert\mathrm{Re}\, a\rvert$
	11	$L_{\frac{1}{2}}(at)$	$\frac{\left[s+(s^2-a^2)^{\frac{1}{2}}\right]^{\frac{1}{2}}}{a^{\frac{1}{2}}(s^2-a^2)^{\frac{1}{2}}} - \left(\frac{2}{as}\right)^{\frac{1}{2}}$	$\mathrm{Re}\, s > \lvert\mathrm{Re}\, a\rvert$

		$f(t)$	$g(s)$	
25 (Contd.)	12	$L_1(at)$	$\frac{2}{\pi s}\left[\frac{s^2}{a(s^2-a^2)^{\frac{1}{2}}}\sin^{-1}\frac{a}{s}-1\right]$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$
	13	$\frac{1}{t}L_1(at)$	$\frac{2}{\pi}\left[1-\frac{(s^2-a^2)^{\frac{1}{2}}}{a}\sin^{-1}\frac{a}{s}\right]$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$
	14	$L_2(at)$	$\frac{2}{a\pi}\left[\frac{2s^2-a^2}{a(s^2-a^2)^{\frac{1}{2}}}\sin^{-1}\frac{a}{s}-2-\frac{a^2}{3s^2}\right]$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$
	15	$\frac{1}{t}L_2(at)$	$\frac{2}{\pi}\left[\frac{s}{a}-\frac{a}{3s}-\frac{s(s^2-a^2)^{\frac{1}{2}}}{a^2}\sin^{-1}\frac{a}{s}\right]$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$
	16	$L_3(at)$	$\frac{2}{\pi}\left[\frac{1}{3s}-\frac{4s}{a^2}-\frac{2a^2}{15s^3}+\frac{4s^3-3as}{a^3(s^2-a^2)^{\frac{1}{2}}}\sin^{-1}\frac{a}{s}\right]$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$
	17	$\frac{1}{t}L_3(at)$	$\frac{2}{\pi}\left[\frac{4s^2}{3a^2}-\frac{7}{9}-\frac{a^2}{15s^2}-\frac{(4s^2-a^2)(s^2-a^2)^{\frac{1}{2}}}{3a^3}\sin^{-1}\frac{a}{s}\right]$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$
	18	$L_{-n-\frac{1}{2}}(at)$	$\frac{[s-(s^2-a^2)^{\frac{1}{2}}]^{n+\frac{1}{2}}}{a^{n+\frac{1}{2}}(s^2-a^2)^{\frac{1}{2}}}$	$n=0,1,2,\ldots$ $\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$

		$f(t)$	$g(s)$	
25.2	1	$t^{\frac{1}{2}}H_{\frac{1}{2}}(at)$	$\frac{(\frac{2}{\pi})^{\frac{1}{2}}a^{\frac{3}{2}}}{s(s^2+a^2)}$	$\operatorname{Re} s > \lvert\operatorname{Im} a\rvert$
	2	$t^{\frac{1}{2}}H_{-\frac{1}{2}}(at)$	$\frac{(2a)^{\frac{1}{2}}}{\pi^{\frac{1}{2}}(s^2+a^2)}$	$\operatorname{Re} s > \lvert\operatorname{Im} a\rvert$
	3	$\frac{1}{t^{\frac{1}{2}}}H_{\frac{1}{2}}(at)$	$\frac{\log(1+\frac{a^2}{s^2})}{(2\pi a)^{\frac{1}{2}}}$	$\operatorname{Re} s > \lvert\operatorname{Im} a\rvert$
	4	$\frac{1}{t^{\frac{1}{2}}}H_{-\frac{1}{2}}(at)$	$(\frac{2}{\pi a})^{\frac{1}{2}}\tan^{-1}\frac{a}{s}$	$\operatorname{Re} s > \lvert\operatorname{Im} a\rvert$
	5	$t^{\frac{1}{2}}H_{\frac{3}{2}}(at)$	$(\frac{2a}{\pi})^{\frac{1}{2}}\left[\frac{1}{2s^2}-\frac{1}{s^2+a^2}+\frac{\log(1+\frac{a^2}{s^2})}{2a^2}\right]$	$\operatorname{Re} s > \lvert\operatorname{Im} a\rvert$
	6	$t^{\frac{1}{2}}H_{-\frac{3}{2}}(at)$	$(\frac{2}{a\pi})^{\frac{1}{2}}\left[\frac{s}{s^2+a^2}-\frac{1}{a}\tan^{-1}\frac{a}{s}\right]$	$\operatorname{Re} s > \lvert\operatorname{Im} a\rvert$

		$f(t)$	$g(s)$	
25.2 (Contd.)	7	$\frac{1}{t^{\frac{1}{2}}}H_{\frac{3}{2}}(at)$	$\frac{1}{(2\pi a)^{\frac{1}{2}}}\left[\frac{a}{s}-\frac{s}{a}\log\left(1+\frac{a^2}{s^2}\right)\right]$	$\operatorname{Re} s > \lvert\operatorname{Im} a\rvert$
	8	$t^{\frac{3}{2}}H_{\frac{3}{2}}(at)$	$(\frac{2}{\pi})^{\frac{1}{2}}a^{\frac{3}{2}}\frac{(3s^2+a^2)}{s^3(s^2+a^2)^2}$	$\operatorname{Re} s > \lvert\operatorname{Im} a\rvert$
	9	$\frac{H_\nu(t)}{t^{\frac{1}{2}}}$	$(\frac{2}{\pi})^{\frac{1}{2}}\int_0^{\frac{\pi}{2}}\frac{\sin u\,du}{(s^2+\sin^2 u)^{\frac{1}{2}}[s+(s^2+\sin^2 u)^{\frac{1}{2}}]^{\nu+\frac{1}{2}}}$	$\operatorname{Re}\nu > -\frac{3}{2}$ $\operatorname{Re} s > 0$
	10	$t^{\frac{1}{2}}L_{\frac{1}{2}}(at)$	$\frac{(\frac{2}{\pi})^{\frac{1}{2}}a^{\frac{3}{2}}}{s(s^2-a^2)}$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$
	11	$t^{\frac{1}{2}}L_{-\frac{1}{2}}(at)$	$\frac{(2a)^{\frac{1}{2}}}{\pi^{\frac{1}{2}}(s^2-a^2)}$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$
	12	$\frac{1}{t^{\frac{1}{2}}}L_{\frac{1}{2}}(at)$	$-\frac{1}{(2\pi a)^{\frac{1}{2}}}\log(1-\frac{a^2}{s^2})$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$
	13	$\frac{1}{t^{\frac{1}{2}}}L_{-\frac{1}{2}}(at)$	$(\frac{2}{a\pi})^{\frac{1}{2}}\coth^{-1}\frac{s}{a}$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$
	14	$t^{\frac{1}{2}}L_{\frac{3}{2}}(at)$	$(\frac{2a}{\pi})^{\frac{1}{2}}\left[\frac{1}{s^2-a^2}-\frac{1}{2s^2}-\frac{1}{2a^2}\log(1-\frac{a^2}{s^2})\right]$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$
	15	$t^{\frac{1}{2}}L_{-\frac{3}{2}}(at)$	$(\frac{2}{\pi a})^{\frac{1}{2}}\left[\frac{s}{s^2-a^2}-\frac{1}{a}\coth^{-1}\frac{s}{a}\right]$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$
	16	$\frac{1}{t^{\frac{1}{2}}}L_{\frac{3}{2}}(at)$	$\frac{1}{(2\pi a)^{\frac{1}{2}}}\left[\frac{s}{a}\log(1-\frac{a^2}{s^2})-\frac{a}{s}\right]$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$
	17	$t^{\frac{3}{2}}L_{\frac{3}{2}}(at)$	$(\frac{2}{\pi})^{\frac{1}{2}}a^{\frac{3}{2}}\frac{(3s^2-a^2)}{s^2(s^2-a^2)^2}$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$
	18	$\frac{L_\nu(t)}{t^{\frac{1}{2}}}$	$(\frac{2}{\pi})^{\frac{1}{2}}\int_0^{\frac{\pi}{2}}\frac{\sin u\,du}{(s^2-\sin^2 u)^{\frac{1}{2}}[s+(s^2-\sin^2 u)^{\frac{1}{2}}]^{\nu+\frac{1}{2}}}$	$\operatorname{Re}\nu > -\frac{3}{2}$ $\operatorname{Re} s > 1$
	19	$t^\nu L_\nu(at)$	$\frac{(2a)^\nu\Gamma(\nu+\frac{1}{2})}{\pi^{\frac{1}{2}}(s^2-a^2)^{\nu+\frac{1}{2}}}-\frac{\Gamma(2\nu+1)2^{\frac{1}{2}}a^\nu(a^2-s^2)^{\frac{\nu}{2}+\frac{1}{4}}}{\pi^{\frac{1}{2}}s^{\nu+\frac{1}{2}}}P_{-\nu-\frac{1}{2}}^{-\nu-\frac{1}{2}}\left(\frac{a}{s}\right)$	$\operatorname{Re}\nu > -\frac{1}{2}$ $\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$

		$f(t)$	$g(s)$	
25.2 (Contd.)	20	$t^{\frac{\nu}{2}} L_\nu(at^{\frac12})$	$(\frac{a}{2})^\nu \frac{e^{\frac{a^2}{4s}}}{s^{\nu+1}} \mathrm{Erf}(\frac{a}{2s^{\frac12}})$	$\mathrm{Re}\,\nu > -\frac32$ $\mathrm{Re}\,s > 0$
	21	$t^{\frac{\nu}{2}} L_{-\nu}(at^{\frac12})$	$\frac{a^\nu}{2^\nu\Gamma(\frac12-\nu)s^{\nu+1}} e^{\frac{a^2}{4s}}\gamma(\frac12-\nu,\frac{a^2}{4s})$	$\mathrm{Re}\,s > 0$
25.5	1	$t^{\frac12}\int_0^{\frac{\pi}{2}} H_\nu(t\sin\theta)\sin^{1-\nu}\theta\,d\theta$	$(\frac{\pi}{2})^{\frac12}\left\{\frac{1}{2^{\nu-\frac12}s^{\nu+\frac12}} - \frac{[s+(s^2+1)^{\frac12}]^{\frac12-\nu}}{(s^2+1)^{\frac12}}\right\}$	$\mathrm{Re}\,s > 1$
	2	$t^{\frac12}\int_0^{\frac{\pi}{2}} L_\nu(t\sin\theta)\sin^{1-\nu}\theta\,d\theta$	$(\frac{\pi}{2})^{\frac12}\left\{\frac{[(s^2-1)^{\frac12}+s]^{\frac12-\nu}}{(s^2-1)^{\frac12}} - \frac{1}{2^{\nu-\frac12}s^{\nu+\frac12}}\right\}$	$\mathrm{Re}\,s > 1$
25.10	1	$t[J_1(at)H_0(at)-J_0(at)H_1(at)]$	$\frac{2a^2}{\pi s(s^2+a^2)^{\frac32}}$	$\mathrm{Re}\,s > \lvert\mathrm{Im}\,a\rvert$
	2	$t[J_\nu(at)H'_\nu(at)-J'_\nu(at)H_\nu(at)]$	$\frac{2a^2\nu}{\pi s(s^2+a^2)^{\nu+\frac12}}$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\,s > \lvert\mathrm{Im}\,a\rvert$
	3	$H_0(t)-Y_0(t)$	$\frac{2}{\pi(s^2+1)^{\frac12}}\log\frac{[s+(s^2+1)^{\frac12}][1+(s^2+1)^{\frac12}]}{s}$	$\mathrm{Re}\,s > 1$
25.12	1	$t[I_1(at)L_0(at)-I_0(at)L_1(at)]$	$\frac{2a^2}{\pi s(s^2-a^2)^{\frac32}}$	$\mathrm{Re}\,s > \lvert\mathrm{Re}\,a\rvert$
	2	$t[I_\nu(at)L'_\nu(at)-I'_\nu(at)L_\nu(at)]$	$\frac{2a^2\nu}{\pi s(s^2-a^2)^{\nu+\frac12}}$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\,s > \lvert\mathrm{Re}\,a\rvert$
25.12.2	1	$t^{\frac{\nu}{2}}[I_\nu(at^{\frac12})-L_\nu(at^{\frac12})]$	$(\frac{a}{2})^\nu s^{-\nu-1} e^{\frac{a^2}{4s}}\mathrm{Erfc}\left(\frac{a}{2s^{\frac12}}\right)$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\,s > 0$
	2	$t^{\frac{\nu}{2}}[I_\nu(at^{\frac12})-L_{-\nu}(at^{\frac12})]$	$\frac{2^\nu e^{\frac{a^2}{4s}}\Gamma(\frac12-\nu,\frac{a^2}{4s})}{\Gamma(\frac12-\nu)a^\nu s^{\nu+1}}$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\,s > 0$
	3	$t^\nu[I_\nu(at)-L_\nu(at)]$	$\frac{2^{\frac12}a^\nu\Gamma(2\nu+1)}{s^{\nu+\frac12}(a^2-s^2)^{\frac{\nu}{2}+\frac14}}P^{-\nu-\frac12}_{-\nu-\frac12}(\frac{a}{s})$	$\mathrm{Re}\,\nu > -\frac12$ $\mathrm{Re}\,s > \lvert\mathrm{Re}\,a\rvert$

		$f(t)$	$g(s)$	
25.12.2 (Contd.)	4	$t^{\nu+1}[I_\nu(at)-L_\nu(at)]$	$\frac{2^{\frac12}\Gamma(2\nu+3)}{\pi^{\frac12}a^{\nu+2}s^{\nu+\frac12}(a^2-s^2)^{\frac{\nu}{2}+\frac34}}P^{-\nu-\frac32}_{-\nu-\frac32}(\frac{a}{s})$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\,s > \lvert\mathrm{Re}\,a\rvert$
27.2	1	$t^{-\frac12}D_{2n}(at^{\frac12})$	$\frac{\Gamma(n+\frac12)(\frac{a^2}{2}-2s)^n}{(s+\frac{a^2}{4})^{n+\frac12}}$	$n=0,1,2,\ldots$ $\mathrm{Re}\,s > -\mathrm{Re}\,\frac{a^2}{4}$
	2	$D_{2n+1}(at^{\frac12})$	$\frac{a(-2)^n\Gamma(n+\frac32)(s-\frac{a^2}{4})^n}{(s+\frac{a^2}{4})^{n+\frac32}}$	$n=0,1,2,\ldots$ $\mathrm{Re}\,s > -\mathrm{Re}\,\frac{a^2}{4}$
	3	$\frac{D_n[(2t)^{\frac12}]D_n[i(2t)^{\frac12}]}{t^{\frac12}}$	$\frac{\pi^{\frac12}i^n n!P_n(\frac1s)}{s^{\frac12}}$	$n=0,1,2,3,\ldots$ $\mathrm{Re}\,s > 0$
	4	$\frac{D_n[2(at)^{\frac12}]D_n[2(bt)^{\frac12}]}{t^{\frac12}}$	$\frac{n!\pi^{\frac12}}{(s+a+b)^{\frac12}}\left(\frac{a+b-s}{a+b+s}\right)^{\frac{n}{2}}P_n\left[2\left\{\frac{ab}{(a+b)^2-s^2}\right\}^{\frac12}\right]$	$n=0,1,2,\ldots$ $\mathrm{Re}\,s > -\mathrm{Re}(a+b)$
	5	$\frac{D_n(2t^{\frac12}\cos a)D_n(2t^{\frac12}\sin a)}{t^{\frac12}}$	$2^n n!\pi^{\frac12}\frac{(1-s)^{\frac{n}{2}}}{(1+s)^{\frac{n+1}{2}}}\sum_{r=0}^{m}\frac{(-1)^r(2n-2r)!\sin^{n-2r}(2a)}{r!(n-r)!(n-2r)!(1-s^2)^{\frac{n}{2}-r}}$	$n=0,1,2,\ldots$ $m=\frac{n}{2}$ if n is even $m=\frac{n-1}{2}$ if n is odd $\mathrm{Re}\,s > 1$
	6	$[D_{-n-1}(-iat^{\frac12})]^2-[D_{-n-1}(iat^{\frac12})]^2$	$\frac{2^{\frac12}a\pi i(s-\frac{a^2}{2})^n}{n!s^{\frac12}(s+\frac{a^2}{2})^{n+1}}$	$n=0,1,2,\ldots$ $\mathrm{Re}\,s > 0$
	7	$D_\nu(-at^{\frac12})-D_\nu(at^{\frac12})$	$\frac{2^{\frac{\nu+1}{2}}\pi a(s-\frac{a^2}{4})^{\frac{\nu-1}{2}}}{\Gamma(-\frac{\nu}{2})(s+\frac{a^2}{4})^{\frac{\nu}{2}+1}}$	$\mathrm{Re}\,s > \lvert\mathrm{Re}\,\frac{a^2}{4}\rvert$
	8	$t^{-\frac12}[D_\nu(at^{\frac12})+D_\nu(-at^{\frac12})]$	$\frac{2^{\frac{\nu}{2}+1}\pi(s-\frac{a^2}{4})^{\frac{\nu}{2}}}{\Gamma(\frac{1-\nu}{2})(s+\frac{a^2}{4})^{\frac{\nu+1}{2}}}$	$\mathrm{Re}\,s > \lvert\mathrm{Re}\,\frac{a^2}{4}\rvert$
27.3	1	$\frac{e^{\frac{t}{2}}}{(e^t-1)^{\nu+\frac12}}\exp\left[-\frac{a^2e^{-t}}{4(1-e^{-t})}\right]D_{2\nu}\left[\frac{a}{(1-e^{-t})^{\frac12}}\right]$	$2^{s+\nu}\Gamma(s+\nu)D_{-2s}(a)$	$\lvert\arg a\rvert < \frac{\pi}{4}$ $\mathrm{Re}\,s > -\mathrm{Re}\,\nu$

		$f(t)$	$g(s)$	
27.3.1	1	$e^{-\frac{at^2}{4}}[D_{2\nu}(-at)-D_{2\nu}(at)]$	$(2\pi)^{\frac12}\frac{s^{2\nu}}{a^{2\nu+1}}e^{\frac{s^2}{2a^2}}\frac{\Gamma(-\nu,\frac{s^2}{2a^2})}{\Gamma(-\nu)}$	Re $s > 0$
27.3.2	1	$\frac{e^{at}D_\nu(bt^{\frac12})}{t^{\frac{\nu+1}{2}}}$	$\frac{2^{\frac{\nu}{2}}\pi^{\frac12}[(s+\frac{b^2}{4}-a)^{\frac12}+(\frac{b^2}{2})^{\frac12}]^\nu}{(s+\frac{b^2}{4}-a)^{\frac12}}$	Re $\nu < 1$ Re $s >$ Re $(a-\frac{b^2}{4})$
	2	$\frac{e^{\frac{a^2t}{4}}D_\nu(at^{\frac12})}{t^{\frac{\nu+1}{2}}}$	$(\frac{\pi}{s})^{\frac12}(a+2^{\frac12}s^{\frac12})^\nu$	Re $\nu < 1$ Re $s > 0$ if Re $a > 0$ Re $s >$ Max $0, \frac12$ Re a^2 if Re $a < 0$
	3	$t^{\frac{\nu-1}{2}}e^{-\frac{a^2t}{4}}D_{-\nu}(at^{\frac12})$	$\frac{\pi^{\frac12}[(2s+a^2)^{\frac12}-a]^\nu}{(2s)^\nu(s+\frac{a^2}{2})^{\frac12}}$	Re $\nu > -1$ Re $s > -\frac12$ Re a^2
	4	$\frac{e^{at}D_\nu(bt^{\frac12})}{t^{\frac{\nu+3}{2}}}$	$-\frac{2^{\frac{\nu}{2}+1}\pi^{\frac12}}{\nu+1}[(s+\frac{b^2}{4}-a)^{\frac12}+(\frac{b^2}{2})^{\frac12}]^{\nu+1}$	Re $\nu < -1$ Re $s >$ Re$(a-\frac{b^2}{4})$
	5	$\frac{e^{\frac{a^2t}{4}}D_\nu(at^{\frac12})}{t^{\frac{\nu+3}{2}}}$	$\frac{(2\pi)^{\frac12}}{\nu+1}(a+2^{\frac12}s^{\frac12})^{\nu+1}$	Re $\nu < -1$ Re $s > 0$ if Re $a > 0$ Re $s >$ Max $0, \frac12$ Re a^2 if Re $a < 0$
	6	$t^{\frac{\nu-3}{2}}e^{-\frac{a^2t}{4}}D_{-\nu}(at^{\frac12})$	$\frac{\pi^{\frac12}[(2s+a^2)^{\frac12}-a]^{\nu-1}}{(\nu-1)2^{\frac{\nu-3}{2}}s^{\nu-1}}$	Re $\nu > 1$ Re $s > -\frac12$ Re a^2
	7	$t^{\nu-1}e^{\frac{a^2t}{4}}D_{2\mu-1}(at^{\frac12})$	$\frac{(2\pi)^{\frac12}\Gamma(2\nu)}{2^\nu}\frac{(s-\frac{a^2}{2})^{\frac{\mu-\nu}{2}}}{s^{\frac{\mu+\nu}{2}}}P^{\mu-\nu}_{\mu+\nu-1}\left(\frac{a}{2^{\frac12}s^{\frac12}}\right)$	Re $\nu > 0$ Re$(\nu-\mu) > -1$ Re $s > 0$
	8	$\frac{1}{t^\nu}e^{-\frac{a^2}{4t}}D_{2\nu-1}\left(\frac{a}{t^{\frac12}}\right)$	$2^{\nu-\frac12}\pi^{\frac12}s^{\nu-1}e^{-2^{\frac12}as^{\frac12}}$	Re $a^2 > 0$ Re $s > 0$
	9	$t^{\nu-1}e^{\frac{a^2t}{4}}D_{2\nu+2n-1}(at^{\frac12})$	$\frac{\pi^{\frac12}\Gamma(2n+2\nu)}{2^{2n-\frac12+\nu}n!}\frac{(a^2-2s)^n}{s^{n+\nu}}$ $\cdot\,{}_2F_1[n+\nu,\frac12-\nu;n+1;1-\frac{a^2}{2s}]$	$n=0,1,2,\ldots$ Re $\nu > 0$ Re $s > 0$

		$f(t)$	$g(s)$	
27.3.2 (Contd.)	10	$e^{at}[D_\nu(-bt^{\frac12})-D_\nu(bt^{\frac12})]$	$\frac{2^{\frac{\nu+1}{2}}\pi b(s-a-\frac{b^2}{4})^{\frac{\nu-1}{2}}}{\Gamma(-\frac{\nu}{2})(s-a+\frac{b^2}{4})^{\frac{\nu}{2}+1}}$	Re $s >$ Re$(a-\frac{b^2}{4})$
	11	$\frac{1}{t^{\frac12}}e^{\frac{(a+b)t}{2}}D_{2n}[(2at)^{\frac12}]D_{2m}[(2at)^{\frac12}]$	$\frac{\pi^{\frac12}(2m+2n)!}{(-2)^{m+n}(m+n)!}\frac{(s-a)^n(s-b)^m}{s^{m+n+\frac12}}$ $\cdot\,{}_2F_1[-m,-n;-m-n+\frac12;\frac{s(s-a-b)}{(s-a)(s-b)}]$	$m,n=0,1,2,\ldots$ Re $s > \frac12$ Re$(b-a)$
	12	$\frac{1}{t^{\frac12}}e^{\frac{(a+b)t}{2}}D_{2n+1}[(2at)^{\frac12}]D_{2m+1}[(2at)^{\frac12}]$	$\frac{(\pi ab)^{\frac12}(2m+2n+2)!}{2^{m+n+1}(m+n+1)!}\frac{(s-a)^n(s-b)^m}{s^{m+n+\frac32}}$ ${}_2F_1[-m,-n;-m-n-\frac12;\frac{s(s-a-b)}{(s-a)(s-b)}]$	$m,n=0,1,2,\ldots$ Re $s > \frac12$ Re$(b-a)$
	13	$\frac{1}{t^{\frac12}}e^{at}[D_\nu(-bt^{\frac12})+D_\nu(bt^{\frac12})]$	$\frac{2^{\frac{\nu}{2}+1}\pi(s-a-\frac{b^2}{4})^{\frac{\nu}{2}}}{\Gamma(\frac{1-\nu}{2})(s-a+\frac{b^2}{4})^{\frac{\nu+1}{2}}}$	Re $s >$ Re$(a-\frac{b^2}{4})$
27.3.2.1	1	$t^\nu e^{\frac{a^2t^2}{4}}D_{-\mu}(at)$	$\frac{\Gamma(\nu+1)}{\Gamma(\mu)}\int_0^\infty u^{\mu-1}(s+au)^{-\nu-1}e^{-\frac{u^2}{2}}du$ $=\frac{s^{\mu-\nu-1}}{a^\mu}\sum_{r=0}^\infty(r!)^{-1}(\mu)_{2r}\Gamma(\nu-2r-\mu+1)\left(-\frac{s^2}{2a^2}\right)^r$	Re $\nu > -1$ Re $s > 0$
28.2.1	1	$t^{\frac12}s_{\mu,\frac14}(at^2)$	$\frac{\Gamma(2\mu+\frac32)s^{\frac12}}{a\,2^{2\mu+2}}S_{-\mu-1,\frac14}\left(\frac{s^2}{4a}\right)$	Re $\mu > -\frac34$ Re $s > 0$
29	1	$Ji_0(at)$	$\frac{\sinh^{-1}(\frac{s}{a})}{s}$ $=\frac1s\log\left[\frac{s+(s^2+a^2)^{\frac12}}{a}\right]$	Re $s > 0$
	2	$Ji_\nu(at)$	$\frac{1}{\nu s}\left\{1-\left[\frac{(s^2+a^2)^{\frac12}-s}{a}\right]^\nu\right\}$	Re $\nu > 0$ Re $s > 0$
	3	$Ji_0(at^{\frac12})$	$\frac{Ei(-\frac{a^2}{4s})}{2s}$	Re $s > 0$

		f(t)	g(s)	
29 (Contd.)	4	$Yi_0(at)$	$\frac{[\sinh^{-1}(\frac{s}{a})]^2}{s}$ $= \frac{1}{s}\log^2\left[\frac{s+(s^2+a^2)^{\frac12}}{a}\right]$	Re s > o
	5	$Yi_\nu(at)$	$\frac{1+\cos(\nu\pi)}{s\nu\sin(\nu\pi)} - \frac{[(s^2+a^2)^{\frac12}+s]^\nu + [(s^2+a^2)^{\frac12}-s]^\nu\cos(\nu\pi)}{\nu a^\nu s\sin(\nu\pi)}$	$\lvert$Re $\nu\rvert < 1$ Re s > $\lvert$Im a$\rvert$
	6	$Ii_0(at)$	$\frac{1}{s}\left\{\log\left[\frac{s+(s^2-a^2)^{\frac12}}{a}\right] - \frac{\pi i}{2}\right\}$	Re s > $\lvert$Re a$\rvert$
	7	$Ki_0(t)$	$\frac{(\cosh^{-1}s)^2}{2s} + \frac{\pi^2}{8s}$ $= \frac{\log^2[s+(s^2-1)^{\frac12}]}{2s} + \frac{\pi^2}{8s}$	Re s > o
	8	$Ki_\nu(at)$	$\frac{\pi\,\mathrm{cosec}(\nu\pi)}{\nu s}\left\{\frac{[s+(s^2-a^2)^{\frac12}]^\nu + [s-(s^2-a^2)^{\frac12}]^\nu}{2a^\nu} - \cos\frac{\nu\pi}{2}\right\}$	$\lvert$Re $\nu\rvert < 1$ Re s > $\lvert$Re a$\rvert$
	9	$\pi Yi_0(at) - 2\log a\, Ji_0(at)$	$\frac{\log^2 a - \log^2[s+(s^2+a^2)^{\frac12}]}{s}$	Re s > $\lvert$Im a$\rvert$
	10	$Ki_0(at) + \log a\, Ii_0(at)$	$\frac{\log^2[s+(s^2-a^2)^{\frac12}] - \log^2 a - i\pi\log a + \frac{\pi^2}{4}}{2s}$	Re s > $\lvert$Re a$\rvert$
30	1	${}_0F_1[\;;n+1;t]$	$\frac{{}_1F_1[1;n+1;\frac{1}{s}]}{s}$	n = 0,1,2,... Re s > o
	2	${}_1F_1[\nu;1;at]$	$\frac{s^{\nu-1}}{(s-a)^\nu}$	Re s > Max o, Re a
	3	$k_0(at)$	$\frac{1}{s+a}$	Re s > − Re a
	4	$k_{2n+2}(at)$	$\frac{2a(a-s)^n}{(a+s)^{n+2}}$	n = 0,1,2,... Re s > − Re a

		f(t)	g(s)	
30 (Contd.)	5	$k_{2\nu}(at)$	$\frac{\sin(\nu\pi)}{2\pi\nu(1-\nu)a}\,{}_2F_1[1,2;2-\nu;\frac{a-s}{2a}]$	Re s > o
	6	$\frac{1}{t}k_{2m+2}(at)k_{2n+2}(at)$	$4a^2\frac{(-s)^{m+n}}{(s+2a)^{m+n+2}}\,{}_2F_1\left[-m,-n;2;\frac{4a^2}{s^2}\right]$	m,n = 0,1,2,... Re s > − 2 Re a
	7	$\frac{1}{t}W_{0,\nu}(at)$	$\frac{a\pi}{2s}\sec(\nu\pi)P_{\nu-\frac12}(\frac{2s}{a})$	$\frac12 <$ Re $\nu < \frac32$ Re s > o
30.2	1	$t^{n-\frac12}k_{2n+2}(at)$	$(\frac{\pi}{a})^{\frac12}\frac{(2n)!}{(n+1)!\,2^{2n+\frac12}}\left(-\frac{1}{s+a}\right)^{n+1}P^1_{2n+1}\left[\left(\frac{s-a}{s+a}\right)^{\frac12}\right]$	n = 0,1,2,... Re s > o
	2	$t^b\prod_{r=1}^{n}k_{2m_r+2}(a_r t)$	$(-1)^m 2^n\left(\prod_{r=1}^{n}a_r\right)(s+a)^{-b-1-n}\Gamma(b+1+n)$ $\cdot F_A\left(b+1+n;-m_1,\dots,-m_n;2,\dots,2;\frac{2a_1}{s+a},\dots,\frac{2a_n}{s+a}\right)$ $m = \sum_{r=1}^{n}m_r \quad a = \sum_{r=1}^{n}a_r$	Re(b+n) > − 1 n = 1,2,3,... m_i = 1,2,3,... Re s > o
	3	$t^b M_{\mu,\nu}(at)$	$\frac{a^{\nu+\frac12}\Gamma(b+\nu+\frac32)}{(s+\frac{a}{2})^{b+\nu+\frac32}}$ $\cdot\,{}_2F_1[b+\nu+\frac32,\nu-\mu+\frac12;2\nu+1;\frac{a}{s+\frac{a}{2}}]$	Re(b+ν) > − $\frac32$ Re s > $\frac12\lvert$Re a$\rvert$
	4	$t^{\nu-\frac12}M_{\mu,\nu}(at)$	$a^{\nu+\frac12}\Gamma(2\nu+1)\frac{(s-\frac{a}{2})^{\mu-\nu-\frac12}}{(s+\frac{a}{2})^{\mu+\nu+\frac12}}$	Re ν > − $\frac12$ Re s > $\frac12\lvert$Re a$\rvert$
	5	$t^b\prod_{r=1}^{n}M_{\mu_r,\nu_r-\frac12}(a_r t)$	$\frac{\prod_{r=1}^{n}a_r^{\nu_r}\,\Gamma(b+1+U)}{(s+a)^{b+1+U}}$ $\cdot F_A\left(b+1+U;\nu_1-\mu_1,\dots,\nu_n-\mu_n;2\nu_1,\dots,2\nu_n;\frac{a_1}{s+a},\dots,\frac{a_n}{s+a}\right)$ $U = \sum_{r=1}^{n}\nu_r \qquad a = \frac12\sum_{r=1}^{n}a_r$	Re(b+U) > − 1 n = 1,2,3,... Re$(s\pm\frac{a_1}{2}\pm\dots\pm\frac{a_n}{2}) > $ o

		f(t)	g(s)	
30.2 (Contd.)	6	$t^{\nu-\frac{1}{2}} W_{\mu,\nu}(at)$	$\dfrac{\Gamma(\mu+\nu+\frac{1}{2}) a^{\nu+\frac{1}{2}} (\frac{a}{2}-s)^{\mu-\nu-\frac{1}{2}}}{(\frac{a}{2}+s)^{\mu+\nu+\frac{1}{2}}}$	$\mathrm{Re}\,\nu > -\frac{1}{2}$ $\mathrm{Re}\,s > \frac{1}{2}\,\lvert \mathrm{Re}\,a \rvert$
	7	$t^{b}\, W_{\mu,\nu}(at)$	$\dfrac{\Gamma(b+\nu+\frac{3}{2})\,\Gamma(b-\nu+\frac{3}{2})}{s^{b+1}\,\Gamma(b-\mu+2)}$ $\cdot\, {}_2F_1[b+\nu+\frac{3}{2}, b-\nu+\frac{3}{2}; b-\mu+2; \frac{1}{2}-\frac{a}{s}]$	$\mathrm{Re}(b+\nu) > -\frac{3}{2}$ $\mathrm{Re}(b-\nu) > -\frac{3}{2}$ $\mathrm{Re}\,s > -\frac{1}{2}\,\mathrm{Re}\,a$
	8	$t^{c-1}\, {}_1F_1[a;c;bt]$	$\Gamma(c)\, s^{a-c} (s-b)^{-a}$	$\mathrm{Re}\,c > o$ $\mathrm{Re}\,b > o$ $\mathrm{Re}\,s > o$
	9	$t^{d}\, \Phi_1(a,b,c;x,yt)$	$\dfrac{\Gamma(d+1)}{s^{d+1}} F_1(a,b,d+1,c;x,\frac{y}{s})$	$\mathrm{Re}\,d > -1$ $\mathrm{Re}\,s > \mathrm{Max}\,o, \mathrm{Re}\,y$
	10	$t^{c-1}\, \Phi_2(a,b,c;xt,yt)$	$\dfrac{\Gamma(c)}{s^{c}(1-\frac{x}{s})^{a}(1-\frac{y}{s})^{b}}$	$\mathrm{Re}\,c > o$ $\mathrm{Re}\,s > \mathrm{Max}\,o, \mathrm{Re}\,x, \mathrm{Re}\,y$
	11	$t^{c-1}\, \Phi_2(a_1,\ldots,a_n;c;b_1 t,\ldots,b_n t)$	$\dfrac{\Gamma(c)}{s^{c}} \left(1-\frac{b_1}{s}\right)^{-a_1} \cdots \left(1-\frac{b_n}{s}\right)^{-a_n}$	$\mathrm{Re}\,c > o$ $\mathrm{Re}\,s > \mathrm{Max}\,o, \mathrm{Re}\,b_j\,(j=1,\ldots,n)$
	12	$t^{d}\, \Phi_2(a,b,c;xt,y)$	$\dfrac{\Gamma(d+1)}{s^{d+1}} \Xi_1(a,b,d+1,c;\frac{x}{s},y)$	$\mathrm{Re}\,d > -1$ $\mathrm{Re}\,s > \mathrm{Max}\,o, \mathrm{Re}\,x$
	13	$t^{d}\, \Phi_2(a,b,c;xt,yt)$	$\dfrac{\Gamma(d+1)}{s^{d+1}} F_1(d+1,a,b,c;\frac{x}{s},\frac{y}{s})$	$\mathrm{Re}\,d > -1$ $\mathrm{Re}\,s > \mathrm{Max}\,o, \mathrm{Re}\,x, \mathrm{Re}\,y$
	14	$t^{a}\, \Phi_3(b,c;xt,y)$	$\dfrac{\Gamma(a+1)}{s^{a+1}} \Xi_2(a+1,b,c;\frac{x}{s},y)$	$\mathrm{Re}\,a > -1$ $\mathrm{Re}\,s > \mathrm{Max}\,o, \mathrm{Re}\,x$
	15	$t^{a}\, \Phi_3(b,c;x,yt)$	$\dfrac{\Gamma(a+1)}{s^{a+1}} \Phi_2(b,a+1,c;x,\frac{y}{s})$	$\mathrm{Re}\,a > -1$ $\mathrm{Re}\,s > \mathrm{Max}\,o, \mathrm{Re}\,y$
	16	$t^{c-1}\, \Phi_3(b,c;xt,yt)$	$\dfrac{\Gamma(c)\, e^{\frac{y}{s}}}{s^{c}(1-\frac{x}{s})^{b}}$	$\mathrm{Re}\,c > o$ $\mathrm{Re}\,s > \mathrm{Max}\,o, \mathrm{Re}\,x$

		f(t)	g(s)	
30.2 Contd.)	17	$t^{a}\, \Phi_3(b,c;xt,yt)$	$\dfrac{\Gamma(a+1)}{s^{a+1}} \Phi_1(a+1,b,c;\frac{x}{s},\frac{y}{s})$	$\mathrm{Re}\,a > -1$ $\mathrm{Re}\,s > \mathrm{Max}\,o, \mathrm{Re}\,x$
	18	$t^{\nu}\, \Xi_1(a,b,c,d;x,yt)$	$\dfrac{\Gamma(\nu+1)}{s^{\nu+1}} F_3(a,b,c,\nu+1;d;x,\frac{y}{s})$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\,s > \mathrm{Max}\,o, \mathrm{Re}\,y$
	19	$t^{d}\, \Xi_2(a,b,c;x,yt)$	$\dfrac{\Gamma(d+1)}{s^{d+1}} \Xi_1(a,d+1,b,c;x,\frac{y}{s})$	$\mathrm{Re}\,d > -1$ $\mathrm{Re}\,s > \mathrm{Max}\,o, \mathrm{Re}\,y$
	20	$t^{\nu}\, \Psi_1(a,b,c,d;x,yt)$	$\dfrac{\Gamma(\nu+1)}{s^{\nu+1}} F_2(a,b,\nu+1,c,d;x,\frac{y}{s})$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\,s > \mathrm{Max}\,o, \mathrm{Re}\,y$
	21	$t^{d}\, \Psi_2(a,b,c;xt,y)$	$\dfrac{\Gamma(d+1)}{s^{d+1}} \Psi_1(a,d+1,b,c;\frac{x}{s},y)$	$\mathrm{Re}\,d > -1$ $\mathrm{Re}\,s > \mathrm{Max}\,o, \mathrm{Re}\,x$
	22	$t^{d}\, \Psi_2(a,b,c;xt,yt)$	$\dfrac{\Gamma(d+1)}{s^{d+1}} F_4(d+1,a,b,c;\frac{x}{s},\frac{y}{s})$	$\mathrm{Re}\,d > -1$ $\mathrm{Re}\,s > \mathrm{Max}\,o, \mathrm{Re}\,x, \mathrm{Re}\,y$
30.2.1	1	$t^{a}\, \Phi_3(b,c;x,yt^2)$	$\dfrac{\Gamma(a+1)}{s^{a+1}}\ {}_1\left(\frac{a+1}{2},b,\frac{a}{2}+1,c;\frac{4y}{s^2},x\right)$	$\mathrm{Re}\,a > \frac{1}{2}$ $\mathrm{Re}\,s > 2\lvert \mathrm{Re}\,y^{\frac{1}{2}} \rvert$
	2	$t^{d}\, \Xi_2(a,b,c;x,yt^2)$	$\dfrac{\Gamma(d+1)}{s^{d+1}} F_3\left(a,\frac{d+1}{2},b,\frac{d}{2}+1,c;x,\frac{4y}{s^2}\right)$	$\mathrm{Re}\,d > \frac{1}{2}$ $\mathrm{Re}\,s > 2\lvert \mathrm{Re}\,y^{\frac{1}{2}} \rvert$
30.3	1	$\dfrac{e^{(a+b)t}}{t} k_{2m+2}(at)\, k_{2n+2}(bt)$	$4ab\, \dfrac{(-1)^{m+n}(m+n+1)!}{(m+1)!(n+1)!}\, \dfrac{(s-2a)^{m}(s-2b)^{n}}{s^{m+n+2}}$ $\cdot\, {}_2F_1\left[-m,-n;-m-n-1;\, \dfrac{s(s-2a-2b)}{(s-2a)(s-2b)}\right]$	$m,n = 0,1,2,\ldots$ $\mathrm{Re}\,s > o$
	2	$e^{\frac{at}{2}}\, M_{\mu,\nu}(at)$	$\dfrac{a^{\nu+\frac{1}{2}}\,\Gamma(\nu+\frac{3}{2})}{s^{\nu+\frac{3}{2}}}\, {}_2F_1[\nu+\frac{3}{2}, \nu-\mu+\frac{1}{2}; 2\nu+1; \frac{a}{s}]$	$\mathrm{Re}\,\nu > -\frac{3}{2}$ $\mathrm{Re}\,s > \frac{1}{2}\lvert \mathrm{Re}\,a \rvert$
	3	$(e^{t}-1)^{\nu-\frac{1}{2}} \exp(-\frac{a}{2} e^{t})$ $\cdot\, M_{\mu,\nu}(ae^{t}-a)$	$\dfrac{\Gamma(2\nu+1)\,\Gamma(\frac{1}{2}+\mu-\nu+s)}{\Gamma(s+1)}\, W_{-\mu-\frac{s}{2},\nu-\frac{s}{2}}(a)$	$\mathrm{Re}\,\nu > -\frac{1}{2}$ $\mathrm{Re}\,s > \mathrm{Re}(\nu-\mu) - \frac{1}{2}$
	4	$\dfrac{1}{t}\, e^{-\frac{a}{2t}}\, W_{\frac{1}{2},\nu}(\frac{a}{t})$	$\dfrac{2}{\pi^{\frac{1}{2}}}\, (2as)^{\frac{1}{2}} K_{\nu+\frac{1}{2}}(a^{\frac{1}{2}}s^{\frac{1}{2}})\, K_{\nu-\frac{1}{2}}(a^{\frac{1}{2}}s^{\frac{1}{2}})$	$\mathrm{Re}\,a > o$ $\mathrm{Re}\,s > o$

		$f(t)$	$g(s)$	
30.3 (Contd.)	5	$\frac{e^{\frac{a}{2t}}}{t} W_{-\frac{1}{2},\mu}\left(\frac{a}{t}\right)$	$\frac{(a\pi^3 s)^{\frac{1}{2}}}{4\mu}\left[H^{(1)}_{\mu+\frac{1}{2}}(a^{\frac{1}{2}}s^{\frac{1}{2}})H^{(2)}_{\mu-\frac{1}{2}}(a^{\frac{1}{2}}s^{\frac{1}{2}}) + H^{(1)}_{\mu-\frac{1}{2}}(a^{\frac{1}{2}}s^{\frac{1}{2}})H^{(2)}_{\mu+\frac{1}{2}}(a^{\frac{1}{2}}s^{\frac{1}{2}})\right]$	$\lvert\arg a\rvert < \pi$ $\mathrm{Re}\, s > 0$
	6	$\frac{e^{t}}{(e^{t}-1)^{\mu+1}} \exp\left[-\frac{a}{2(e^{t}-1)}\right] W_{\mu,\nu}\left(\frac{a}{e^{t}-1}\right)$	$\frac{1}{a}\Gamma(\mu+s)\, W_{-s,\nu}(a)$	$\mathrm{Re}\, a > 0$ $\mathrm{Re}\, s > -\mathrm{Re}\, \mu$
	7	$(1-e^{-t})^{-\mu} \exp\left[-\frac{a}{2(e^{t}-1)}\right] W_{\mu,\nu}\left[\frac{a}{e^{t}-1}\right]$	$\frac{\Gamma(\frac{1}{2}+\nu+s)\Gamma(\frac{1}{2}-\nu+s)}{\Gamma(1-\mu+s)}\, e^{\frac{a}{2}} W_{-s,\nu}(a)$	$\mathrm{Re}\, a > 0$ $\mathrm{Re}(\frac{1}{2} \pm \nu+s) > 0$
30.3.1	1	$e^{-at^2} k_{2n}(at^2)$	$(-1)^{n-1}\frac{s^{n-\frac{3}{2}} e^{\frac{s^2}{16a}}}{2^{\frac{3n}{2}+\frac{1}{4}} a^{\frac{n}{2}-\frac{1}{4}}} W_{-\frac{3}{4}-\frac{n}{2},\frac{1}{4}-\frac{n}{2}}\left(\frac{s^2}{8a}\right)$	$n = 0,1,2,\ldots$ $\mathrm{Re}\, s > -\infty$
30.3.2	1	$t^{-\frac{1}{2}} e^{-at^{\frac{1}{2}}} k_{2n}(at^{\frac{1}{2}})$	$\frac{e^{\frac{a^2}{2s}}}{s}\sum_{r=0}^{n-1} (-1)^r \binom{n-1}{r}\left(\frac{2a^2}{s}\right)^{\frac{n+1-r}{2}} \cdot D_{-n+r-1}\left(\frac{2^{\frac{1}{2}}a}{s^{\frac{1}{2}}}\right)$	$n = 1,2,3,\ldots$ $\mathrm{Re}\, s > 0$
	2	$t^{\mu-1} e^{at}\, {}_1F_1[\nu;\mu;bt]$	$\Gamma(\mu)\frac{(s-a)^{\nu-\mu}}{(s-a-b)^{\nu}}$	$\mathrm{Re}\, \mu > 0$ $\mathrm{Re}\, s > \mathrm{Max}\ \mathrm{Re}(a+b), \mathrm{Re}\, a$
	3	$\frac{t^{c-1}e^{-t}}{(1-b)^{2a}}\, {}_1F_1[a;c;-\frac{4bt}{(1-b)^2}]$	$\frac{\Gamma(c)}{(s+1)^c}\left(1-2\frac{s-1}{s+1}b+b^2\right)^{-a}$	$\mathrm{Re}\, c > 0$ $\mathrm{Re}\, s > \mathrm{Max}\ -1, -\mathrm{Re}\left(\frac{1+b}{1-b}\right)^2$
	4	$\frac{e^{-\frac{at}{2}} M_{\mu,\frac{1}{4}}(at)}{t^{\frac{1}{4}}}$	$\frac{a^{\frac{3}{4}}\pi^{\frac{1}{2}}s^{\mu-\frac{3}{4}}}{2(s+a)^{\mu+\frac{1}{4}}}$	$\mathrm{Re}\, s > \mathrm{Max}\ 0, -\mathrm{Re}\, a$
	5	$\frac{e^{-\frac{at}{2}} M_{\mu,-\frac{1}{4}}(at)}{t^{\frac{3}{4}}}$	$\frac{a^{\frac{1}{4}}\pi^{\frac{1}{2}}s^{\mu-\frac{1}{4}}}{(s+a)^{\mu+\frac{1}{4}}}$	$\mathrm{Re}\, s > \mathrm{Max}\ 0, -\mathrm{Re}\, a$
	6	$\frac{e^{\frac{at}{2}} M_{-\frac{1}{4},\frac{n}{2}+\frac{1}{4}}(at)}{t^{\frac{3}{4}}}$	$\frac{4a^{\frac{1}{4}}\Gamma(n+\frac{3}{2})}{\pi\Gamma(\frac{n}{2})} Q_n[(\frac{s}{a})^{\frac{1}{2}}]$	$n = 1,2,3,\ldots$ $\mathrm{Re}\, s > \lvert\mathrm{Re}\, a\rvert$

		$f(t)$	$g(s)$	
30.3.2 (Contd.)	7	$t^{\nu-\frac{1}{2}} e^{at} M_{\mu,\nu}(bt)$	$\frac{b^{\nu+\frac{1}{2}}\Gamma(2\nu+1)(s-a-\frac{b}{2})^{\mu-\nu-\frac{1}{2}}}{(s-a+\frac{b}{2})^{\mu+\nu+\frac{1}{2}}}$	$\mathrm{Re}\, \nu > -\frac{1}{2}$ $\mathrm{Re}\, s > \mathrm{Re}(a \pm \frac{b}{2})$
	8	$t^{\nu-\frac{1}{2}} e^{\frac{at}{2}} M_{n+\nu+\frac{1}{2},\nu}(at)$	$\frac{a^{\nu+\frac{1}{2}}\Gamma(2\nu+1)(s-a)^n}{s^{n+2\nu+1}}$	$\mathrm{Re}\, \nu > -\frac{1}{2}$ $\mathrm{Re}\, s > 0$
	9	$t^{\frac{a}{2}} e^{\frac{at}{2}} M_{\mu,\nu}(at)$	$\frac{a^{\nu+\frac{1}{2}}\Gamma(\frac{a}{2}+\nu+\frac{3}{2})}{s^{\frac{a}{2}+\nu+\frac{3}{2}}}\, {}_2F_1\left[\frac{a}{2}+\nu+\frac{3}{2}, \nu-\mu+\frac{1}{2}; 2\nu+1; \frac{a}{s}\right]$	$\mathrm{Re}(\frac{a}{2}+\nu) > -\frac{3}{2}$ $\mathrm{Re}\, s > \frac{1}{2}\lvert\mathrm{Re}\, a\rvert$
	10	$\frac{1}{t^{\nu}} e^{\frac{a^2}{2t}} W_{\nu,\nu}(\frac{a^2}{t})$	$\frac{a\pi^{\frac{1}{2}}\Gamma(2\nu+\frac{1}{2})}{s^{\nu+\frac{1}{2}}}[H_{2\nu}(2as^{\frac{1}{2}})-Y_{2\nu}(2as^{\frac{1}{2}})]$	$\mathrm{Re}\, s > 0$
	11	$t^{3\nu-\frac{1}{2}} e^{\frac{a}{2t}} W_{\nu,\nu}(\frac{a}{t})$	$\frac{\Gamma(2\nu+\frac{1}{2})a^{\nu+\frac{1}{2}}}{2s^{2\nu}} H^{(1)}_{2\nu}(a^{\frac{1}{2}}s^{\frac{1}{2}})H^{(2)}_{2\nu}(a^{\frac{1}{2}}s^{\frac{1}{2}})$	$\lvert\arg a\rvert < \pi$ $\mathrm{Re}\, \nu > -\frac{1}{4}$ $\mathrm{Re}\, s > 0$
	12	$\frac{e^{-\frac{a}{2t}}}{t^{3\nu+\frac{1}{2}}} W_{\nu,\nu}(\frac{a}{t})$	$\frac{2s^{2\nu}}{\pi^{\frac{1}{2}}a^{\nu-\frac{1}{2}}}[K_{2\nu}(a^{\frac{1}{2}}s^{\frac{1}{2}})]^2$	$\mathrm{Re}\, a > 0$ $\mathrm{Re}\, s > 0$
	13	$t^{\mu} e^{\frac{a}{2t}} W_{\mu,\nu}(\frac{a}{t})$	$\frac{a^{\frac{1}{2}}}{2^{2\mu-1}s^{\mu+\frac{1}{2}}} S_{2\mu,2\nu}(2a^{\frac{1}{2}}s^{\frac{1}{2}})$	$\lvert\arg a\rvert < \pi$ $\mathrm{Re}(\mu \pm \nu) > -\frac{1}{2}$ $\mathrm{Re}\, s > 0$
	14	$\frac{1}{t^{\mu}} e^{-\frac{a}{2t}} W_{\mu,\nu}(\frac{a}{t})$	$2a^{\frac{1}{2}}s^{\mu-\frac{1}{2}} K_{2\nu}(2a^{\frac{1}{2}}s^{\frac{1}{2}})$	$\mathrm{Re}\, a > 0$ $\mathrm{Re}\, s > 0$
	15	$t^{b} e^{-\frac{at}{2}} W_{\mu,\nu}(at)$	$a^{1-b}\, {}_2F_1[b+\nu+\frac{3}{2}, b-\nu+\frac{3}{2}; b-\mu+2; -\frac{s}{a}]$	$\mathrm{Re}\, s > -\frac{1}{2}\mathrm{Re}\, a$
30.3.2.1	1	$t^{2\nu-1} e^{-\frac{t^2}{2a}} M_{-3\nu,\nu}(\frac{t^2}{a})$	$\frac{\Gamma(4\nu+1)}{2\pi^{\frac{1}{2}}a^{\nu}s^{4\nu}} e^{\frac{as^2}{8}} K_{2\nu}(\frac{as^2}{8})$	$\mathrm{Re}\, a > 0$ $\mathrm{Re}\, \nu > -\frac{1}{4}$ $\mathrm{Re}\, s > 0$
	2	$t^{2\nu-1} e^{-\frac{t^2}{2a}} M_{\mu,\nu}(\frac{t^2}{a})$	$\frac{\Gamma(4\nu+1)a^{\frac{\mu+\nu-1}{2}}s^{\mu-\nu-1}}{2^{\mu+3\nu}} e^{\frac{as^2}{8}} \cdot W_{-\frac{\mu+3\nu}{2},\frac{\mu-\nu}{2}}\left(\frac{as^2}{4}\right)$	$\mathrm{Re}\, a > 0$ $\mathrm{Re}\, \nu > -\frac{1}{4}$ $\mathrm{Re}\, s > 0$

		$f(t)$	$g(s)$	
31.2	1	$t^{a-1}{}_2F_1[-n,n+b;a;t]$	$\frac{\Gamma(a)}{s^a}A_n(b,\frac{1}{s})$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	2	$t^{\nu-1}{}_2F_1[1,\frac{1}{2};\nu;-\frac{t}{a}]$	$(\pi a)^{\frac{1}{2}}\Gamma(\nu)s^{-\nu+\frac{1}{2}}e^{as}\mathrm{Erfc}[(as)^{\frac{1}{2}}]$	$\mathrm{Re}\,\nu>0$ $\lvert\arg a\rvert<\pi$ $\mathrm{Re}\, s>0$
	3	$t^{c-1}{}_2F_1[a,b;c;-ht]$	$\Gamma(c)s^{-c}\left(\frac{s}{h}\right)^{\frac{a+b-1}{2}}e^{\frac{s}{2h}}W_{\frac{1-a-b}{2},\frac{a-b}{2}}\left(\frac{s}{2h}\right)$	$\mathrm{Re}\, c>0$ $\lvert\arg h\rvert<\pi$ $\mathrm{Re}\, s>0$
	4	$t^{\nu}{}_2F_1[a,b;c;-ht]$	$\frac{\Gamma(c)}{\Gamma(a)\Gamma(b)}s^{-\nu-1}E(a,b,\nu+1:c:\frac{s}{h})$	$\mathrm{Re}\,\nu>-1$ $\lvert\arg h\rvert<\pi$ $\mathrm{Re}\, s>0$
31.2.1	1	$t^{\nu}(1+ht)^{a+b-c}{}_2F_1[a,b;c;-ht]$	$\frac{\Gamma(c)}{\Gamma(c-a)\Gamma(c-b)s^{\nu+1}}E[c-a,c-b,\nu+1:c:\frac{s}{h})$	$\mathrm{Re}\,\nu>-1$ $\lvert\arg h\rvert<\pi$ $\mathrm{Re}\, s>0$
	2	$\frac{{}_2F_1\left[\nu,\nu;1;\ \frac{t(a+b+t)}{(a+t)(b+t)}\right]}{[(a+t)(b+t)]^{\nu}}$	$\frac{e^{\frac{a+b}{2}s}K_{\nu-\frac{1}{2}}\left(\frac{as}{2}\right)K_{\nu-\frac{1}{2}}\left(\frac{bs}{2}\right)}{\pi(ab)^{\nu-\frac{1}{2}}}$	$\lvert\arg a\rvert<\pi$ $\lvert\arg b\rvert<\pi$ $\lvert\arg as\rvert<\pi$ $\lvert\arg bs\rvert<\pi$ $\mathrm{Re}\, s>0$
	3	$\frac{\left(1+\frac{a}{t}\right)^{\mu}\left(1+\frac{b}{t}\right)^{\nu}}{t^{\frac{1}{2}}}{}_2F_1\left[-\mu,-\nu;\frac{1}{2}-\mu-\nu;\ \frac{t(a+b+t)}{(a+t)(b+t)}\right]$	$\frac{\Gamma(\frac{1}{2}-\mu-\nu)e^{\frac{a+b}{2}s}}{2^{\mu+\nu}s^{\frac{1}{2}}}D_{2\mu}\left[(2as)^{\frac{1}{2}}\right]\cdot D_{2\nu}\left[(2bs)^{\frac{1}{2}}\right]$	$\lvert\arg a\rvert<\pi$ $\lvert\arg b\rvert<\pi$ $\mathrm{Re}(\mu+\nu)<1$ $\lvert\arg as\rvert<\pi$ $\lvert\arg bs\rvert<\pi$ $\mathrm{Re}\, s>0$
	4	$\frac{t^{c-1}}{(a+t)^{\mu}(b+t)^{\nu}}{}_2F_1[\mu,\nu;c;\ \frac{t(a+b+t)}{(a+t)(b+t)}]$	$\Gamma(c)(ab)^{\frac{c-\mu-\nu-1}{2}}\frac{1}{s}e^{\frac{a+b}{2}s}\cdot W_{\frac{-\mu+\nu-c+1}{2},\frac{\mu+\nu-c}{2}}(as)\cdot W_{\frac{\mu-\nu-c+1}{2},\frac{\mu+\nu-c}{2}}(bs)$	$\lvert\arg a\rvert<\pi$ $\lvert\arg b\rvert<\pi$ $\mathrm{Re}\, c>0$ $\lvert\arg as\rvert<\pi$ $\lvert\arg bs\rvert<\pi$ $\mathrm{Re}\, s>0$
31.3	1	$(1-e^{-t})^{\nu}{}_2F_1[-n,\nu+b+n;b;e^{-t}]$	$\frac{B(s,\nu+n+1)B(s,b+n-s)}{B(s,b-s)}$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\, s>0$

		$f(t)$	$g(s)$	
31.3 (Contd.)	2	$(1-e^{-t})^{\nu}{}_2F_1[a,b;c;he^{-t}]$	$B(s,\nu+1){}_3F_2\left[\begin{matrix}a,b,s;\\ c,s+\nu+1;\end{matrix}\ h\right]$	$\mathrm{Re}\,\nu>-1$ $\lvert\arg(1-h)\rvert<\pi$ $\mathrm{Re}\, s>0$
	3	$(1-e^{-t})^{c-1}{}_2F_1[a,b;c;h(1-e^{-t})]$	$B(s,c){}_2F_1[a,b;s+c;h]$	$\mathrm{Re}\, c>0$ $\lvert\arg(1-h)\rvert<\pi$ $\mathrm{Re}\, s>0$
	4	$(1-e^{-t})^{c-1}{}_2F_1[a,b;c;1-e^{-t}]$	$\frac{\Gamma(s)\Gamma(c-a-b+s)\Gamma(c)}{\Gamma(c-a+s)\Gamma(c-b+s)}$	$\mathrm{Re}\, c>0$ $\mathrm{Re}\, s>\mathrm{Max}\ 0,\mathrm{Re}(a+b-c)$
	5	$e^{-at}(1-e^{-t})^{b-a-n-1}{}_2F_1[-n,b-c-n;b-a-n;1-e^{-t}]$	$\frac{\Gamma(b-a-n)\Gamma(s+a)(s+c)_n}{\Gamma(s+b)}$	$\mathrm{Re}(b-a)>n$ $n=0,1,2,\ldots$ $\mathrm{Re}\, s>-\mathrm{Re}\, a$
	6	$e^{-ht}(1-e^{-t})^{c-1}{}_2F_1[a,b;c;1-e^{-t}]$	$\frac{\Gamma(c)\Gamma(s+h)\Gamma(s+c+h-b-a)}{\Gamma(s+c+h-a)\Gamma(s+c+h-b)}$	$\mathrm{Re}\, c>0$ $\mathrm{Re}\, s>\mathrm{Max}-\mathrm{Re}\, h,\mathrm{Re}(a+b-c-h)$
	7	$(1-e^{-t})^{\nu}{}_2F_1[a,b;c;h(1-e^{-t})]$	$B(s,\nu+1){}_3F_2\left[\begin{matrix}a,b,\nu+1;\\ c,s+\nu+1\ ;\end{matrix}\ h\right]$	$\mathrm{Re}\,\nu>-1$ $\lvert\arg(1-h)\rvert<\pi$ $\mathrm{Re}\, s>0$
32	1	${}_0F_2\left[\begin{matrix}\ ;\\ \frac{1}{2},1;\end{matrix}-t\right]$	$\frac{1}{s}\cos\frac{2}{s^{\frac{1}{2}}}$	$\mathrm{Re}\, s>0$
	2	${}_pF_q\left[\begin{matrix}(a);\\ (b);\end{matrix}\ ct\right]$	$\frac{1}{s}\ {}_{p+1}F_q\left[\begin{matrix}(a),1;\\ (b);\end{matrix}\ \frac{c}{s}\right]$	$q>p$ $\mathrm{Re}\, s>\lvert\mathrm{Re}\, c\rvert$
	3	$t^{\mu}{}_0F_2\left[\begin{matrix}\ ;\\ \mu+1,\frac{3}{2};\end{matrix}-t\right]$	$\frac{\Gamma(\mu+1)\sin\frac{2}{s^{\frac{1}{2}}}}{2s^{\mu+\frac{1}{2}}}$	$\mathrm{Re}\,\mu>-1$ $\mathrm{Re}\, s>0$
	4	${}_2F_2\left[\begin{matrix}-n,n+1;\\ 1,1;\end{matrix}\ ct\right]$	$sP_n(1-\frac{2c}{s})$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	5	${}_pF_{q+1}\left[\begin{matrix}(a)\ ;\\ (b),1\ ;\end{matrix}\ ct\right]$	$\frac{1}{s}\ {}_pF_q\left[\begin{matrix}(a);\\ (b);\end{matrix}\ \frac{c}{s}\right]$	$q\geq p-1$ $\mathrm{Re}\, s>\lvert\mathrm{Re}\, c\rvert$

		$f(t)$	$g(s)$	
32 (Contd.)	6	$\sum\limits_{i,-i} \frac{1}{i} E\left(a, a+\frac{1}{m}, \dots, a+\frac{m-1}{m} :: \frac{b e^{i\pi}}{m^m t}\right)$ $\sum\limits_{i,-i}$ denotes that in the expression following the E sign i is to be replaced by -i and the two expressions are to be added.	$\frac{(2\pi)^{\frac{1+m}{2}}}{m^{\frac{1}{2}+ma}} b^a s^{a-1} e^{-b^{\frac{1}{m}} s^{\frac{1}{m}}}$	Re a > o Re b > o m = 2,3,4,... Re s > o
	7	$\sum\limits_{i,-i} \frac{1}{i} E\left[\Delta(n;n\nu), \Delta(n;-n\nu) :: \Delta(n;\tfrac{1}{2}) : \frac{a e^{i\pi}}{n^n t}\right]$ $\Delta(n;\alpha)$ represents the set of parameters $\frac{\alpha}{n}, \frac{\alpha+1}{n}, \dots, \frac{\alpha+n-1}{n}$ For defitition of $\sum\limits_{i,-i}$ see preceding entry.	$2^{\frac{n+1}{2}} \pi^{\frac{n}{2}} s^{-1} e^{-\frac{1}{2} a^{\frac{1}{n}} s^{\frac{1}{n}}} K_{n\nu}\left(\frac{a^{\frac{1}{n}} s^{\frac{1}{n}}}{2}\right)$	n = 2,3,4,... Re a > o Re s > o
32.1	1	${}_0F_2\left[\begin{matrix} ; \\ 1, \frac{2}{3} ; \end{matrix} -a^3 t^3\right]$	$\frac{1}{(s^3+27a^3)^{\frac{1}{3}}}$	Re s > Max − 3 Re a, $\frac{3 \text{ Re } a + 3^{\frac{3}{2}} \lvert \text{Im } a \rvert}{2}$
	2	${}_0F_n\left[\begin{matrix} ; \\ \frac{1}{n}, \frac{2}{n}, \dots, \frac{n-1}{n}, 1 ; \end{matrix} (\tfrac{t}{n})^n\right]$	$\frac{1}{s} e^{s^{-n}}$	n = 1,2,3,... Re s > o
	3	${}_pF_q\left[\begin{matrix} (a) ; \\ (b) ; \end{matrix} (ct)^2\right]$	$\frac{1}{s}\ {}_{p+2}F_q\left[\begin{matrix} (a), 1, \frac{1}{2} ; \\ (b) ; \end{matrix} \frac{4c^2}{s^2}\right]$	q ≥ p + 1 Re s > 2 | Re c |
32.2	1	$t^{\frac{1}{2}}\, {}_0F_2\left[\begin{matrix} ; \\ \frac{3}{2}, \frac{3}{2} ; \end{matrix} -t\right]$	$\frac{\pi^{\frac{1}{2}} \sin \frac{2}{s^{\frac{1}{2}}}}{4s}$	• Re s > o
	2	$t^b\, {}_0F_2\left[\begin{matrix} ; \\ b+1, \frac{3}{2} ; \end{matrix} -\frac{t}{a}\right]$	$\frac{a^{\frac{1}{2}} \Gamma(b+1) \sin \frac{2}{a^{\frac{1}{2}} s^{\frac{1}{2}}}}{2 s^{b+\frac{1}{2}}}$	Re b > − 1 Re s > 0
	3	$t^b\, {}_0F_2\left[\begin{matrix} ; \\ b+1, \frac{1}{2} ; \end{matrix} -\frac{t}{a}\right]$	$\frac{\Gamma(b+1) \cos \frac{2}{a^{\frac{1}{2}} s^{\frac{1}{2}}}}{s^{b+1}}$	Re b > − 1 Re s > o
	4	$t^{\mu-1}\, {}_0F_2\left[\begin{matrix} ; \\ \mu, \nu ; \end{matrix} -at\right]$	$\frac{\Gamma(\mu)\Gamma(\nu)}{a^{\frac{\nu-1}{2}} s^{\mu-\frac{\nu-1}{2}}} J_{\nu-1}\left(\frac{2a^{\frac{1}{2}}}{s^{\frac{1}{2}}}\right)$	Re μ > o Re s > o

		$f(t)$	$g(s)$	
32.2 (Contd.)	5	$t^{\mu-1}\, {}_1F_2\left[\begin{matrix} 1 ; \\ \mu, \nu ; \end{matrix} at\right]$	$\frac{(\nu-1)\Gamma(\mu)}{a^{\nu-1}} s^{\nu-\mu-1} e^{\frac{a}{s}} \gamma(\nu-1, \frac{a}{s})$	Re ν > 1 Re(ν−μ) > 1 Re s > o
	6	$t^{\nu-1}\, {}_1F_2\left[\begin{matrix} -n ; \\ \mu, \nu ; \end{matrix} at\right]$	$\frac{n!\Gamma(\nu)}{\mu_n s^\nu} L_n^{\mu-1}(\frac{a}{s})$	Re ν > o n = 0,1,2,... Re s > o
	7	$t^{\mu-1}\, {}_1F_2\left[\begin{matrix} \frac{\nu}{2} ; \\ \nu, \mu ; \end{matrix} at\right]$	$\frac{2^{\nu-1}\Gamma(\frac{\nu+1}{2})\Gamma(\mu)}{a^{\frac{\nu-1}{2}} s^{\mu-\frac{\nu}{2}+\frac{1}{2}}} e^{\frac{a}{2s}} I_{\nu-\frac{1}{2}}(\frac{a}{2s})$	Re μ > o Re s > o
	8	$t^{a-1}\, {}_2F_2\left[\begin{matrix} -n, n ; \\ a, \frac{1}{2} ; \end{matrix} t\right]$	$\frac{\Gamma(a)}{s^a} \cos[2n \sin^{-1}(\frac{1}{s^{\frac{1}{2}}})]$	n = 0,1,2,... Re a > o Re s > o
	9	$t^{a-1}\, {}_2F_2\left[\begin{matrix} -n, n+1 ; \\ 1, a ; \end{matrix} t\right]$	$\frac{\Gamma(a)}{s^a} P_n(1-\frac{2}{s})$	Re a > o Re s > o
	10	$t^{a-1}\, {}_2F_2\left[\begin{matrix} -n, n+1 ; \\ a, \frac{3}{2} ; \end{matrix} t\right]$	$\frac{\Gamma(a)}{(2n+1)s^a} \sin[(2n+1)\sin^{-1}(\frac{1}{s^{\frac{1}{2}}})]$	n = 0,1,2,... Re a > o Re s > o
	11	$t^{a-1}\, {}_2F_2\left[\begin{matrix} -n, a+n ; \\ a, b ; \end{matrix} t\right]$	$\frac{\Gamma(a)}{s^a}\, {}_2F_1(-n, a+n; b; \frac{1}{s})$	Re a > o n = 0,1,2,... Re s > o
	12	$t^{a-1}\, {}_2F_2\left[\begin{matrix} -n, n+2\nu ; \\ \nu+\frac{1}{2}, a ; \end{matrix} t\right]$	$n B(n, 2\nu) \frac{\Gamma(a)}{s^a} C_n^\nu(1-\frac{2}{s})$	Re a > o n = 0,1,2,... Re s > o
	13	$t^{\mu-1}\, {}_2F_2\left[\begin{matrix} \nu, \nu+\frac{1}{2} ; \\ 2\nu+\frac{1}{2}, \mu ; \end{matrix} at\right]$	$\frac{2^{2\nu}\Gamma(2\nu+\frac{1}{2})\Gamma(\mu)}{a^\nu \pi^{\frac{1}{2}} \Gamma(2\nu) s^{\mu-\nu}} Q_{2\nu-1}\left[\left(\frac{s}{a}\right)^{\frac{1}{2}}\right]$	Re μ > o Re s > o
	14	$t^{b_q-1}\, {}_pF_q\left[\begin{matrix} a_1, \dots, a_p ; \\ b_1, \dots, b_q ; \end{matrix} kt\right]$	$\frac{\Gamma(b_q)}{s^{b_q}}\, {}_pF_{q-1}\left[\begin{matrix} a_1, \dots, a_p ; \\ b_1, \dots, b_{q-1} ; \end{matrix} \frac{k}{s}\right]$	p < q Re b_q > o Re s > o if p < q Re s > Re k if p=q

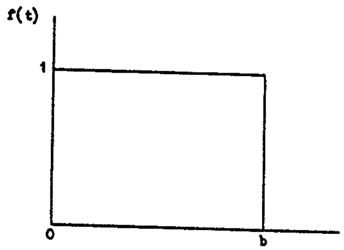
		f(t)	g(s)	
32.2 (Contd.)	15	$t^{c}{}_pF_q\left[\begin{matrix}(a);\\(b);\end{matrix}\;kt\right]$	$\frac{\Gamma(c+1)}{s^{c+1}}{}_{p+1}F_q\left[\begin{matrix}(a),c+1;\\(b)\;;\end{matrix}\;\frac{k}{s}\right]$	$p<q$ $\mathrm{Re}\,c>1$ $\mathrm{Re}\,s>0$ if $p<q$ $\mathrm{Re}\,s>\mathrm{Re}\,k$ if $p=q$
	16	$\frac{1}{t^{\frac12}}{}_{2p}F_{2q}\left[\begin{matrix}\frac{a_1}{2},\frac{a_1+1}{2},\ldots,\frac{a_p}{2},\frac{a_p+1}{2};\\\frac{b_1}{2},\frac{b_1+1}{2},\ldots,\frac{b_q}{2},\frac{b_q+1}{2};\end{matrix}\;-2^{p-q-2}\frac{k^2}{t}\right]$	$\left(\frac{\pi}{s}\right)^{\frac12}{}_pF_q\left[\begin{matrix}a_1,\ldots,a_p;\\b_1,\ldots,b_q;\end{matrix}\;-ks^{\frac12}\right]$	$k>0$ $p<q$ $\mathrm{Re}\,s>0$
	17	$\frac{1}{t^{2\nu+1}}S_1(\nu,\nu-\frac12,-\nu-\frac12,\nu+\frac12;at)$	$\frac{s^{2\nu}}{2^{2\nu+\frac32}\pi^{\frac12}}H_{2\nu}\left(\frac{4a}{s}\right)$	$\mathrm{Re}\,s>0$
	18	$\frac{1}{t^{2\mu+1}}S_1(\nu-\frac12,-\nu-\frac12,\mu,\mu+\frac12;at)$	$\frac{s^{2\mu}}{2^{2\mu+1}\pi^{\frac12}}J_{2\nu}\left(\frac{4a}{s}\right)$	$\mathrm{Re}(\nu-\mu)>0$ $\mathrm{Re}\,s>0$
	19	$\frac{1}{t^{2\nu}}S_1(\nu,\nu-\frac12,-\nu-\frac12,\nu-\frac12;at)$	$\frac{s^{2\nu-1}}{2^{2\nu+\frac12}\pi^{\frac12}}H_{2\nu}\left(\frac{4a}{s}\right)$	$\mathrm{Re}\,s>0$
	20	$\frac{1}{t^{2\nu}}S_2(\nu,\nu-\frac12,-\nu-\frac12,\nu-\frac12;at)$	$\frac{\pi^{\frac12}s^{2\nu-1}}{2^{2\nu}}\left[I_{2\nu}\left(\frac{4a}{s}\right)-L_{2\nu}\left(\frac{4a}{s}\right)\right]$	$\mathrm{Re}\,s>0$
	21	$\frac{1}{t^{2\nu}}S_2(\nu,-\nu-\frac12,\nu-\frac12,\nu-\frac12;at)$	$\frac{\pi^{\frac12}}{2^{2\nu}}\sec(2\nu\pi)s^{2\nu-1}\left[I_{-2\nu}\left(\frac{4a}{s}\right)-L_{2\nu}\left(\frac{4a}{s}\right)\right]$	$\mathrm{Re}\,\nu<\frac12$ $\mathrm{Re}\,s>0$
	22	$\frac{1}{t^{2\nu+1}}S_2(\nu,-\nu-\frac12,\nu-\frac12,\nu+\frac12;at)$	$\frac{\pi^{\frac12}}{2^{2\nu+1}}\sec(2\nu\pi)s^{2\nu}\left[I_{-2\nu}\left(\frac{4a}{s}\right)-L_{2\nu}\left(\frac{4a}{s}\right)\right]$	$\mathrm{Re}\,\nu<0$ $\mathrm{Re}\,s>0$
	23	$\frac{1}{t^{2\mu+1}}S_2(\nu,-\nu-1,\mu+\frac12,\mu;at)$	$\pi^{-\frac12}\left(\frac{s}{2}\right)^{2\mu}K_{2\nu+1}\left(\frac{4a}{s}\right)$	$\mathrm{Re}(\mu+\nu)<-\frac12$ $\mathrm{Re}(\mu-\nu)<\frac12$ $\mathrm{Re}\,s>0$

		f(t)	g(s)	
32.2 (Contd.)	24	$\frac{1}{t^{2\nu}}S_3(\nu,\nu-\frac12,-\nu-\frac12,\nu-\frac12;at)$	$\frac{\pi^{\frac32}}{2^{2\nu}}\sec(2\nu\pi)s^{2\nu-1}\left[H_{2\nu}\left(\frac{4a}{s}\right)-Y_{2\nu}\left(\frac{4a}{s}\right)\right]$	$\mathrm{Re}\,\nu<\frac12$ $\mathrm{Re}\,s>0$
	25	$t^{a_{m+1}-1}E(m;a_r:n;b_j:\frac{1}{t})$	$s^{-a_{m+1}}E(m+1;a_r:n;b_j:s)$	$\mathrm{Re}\,a_{m+1}>0$ $\mathrm{Re}\,s>0$
32.2.1	1	$t^{\frac12}{}_0F_2\left[\begin{matrix};\\\frac76,\frac56;\end{matrix}\;-a^3t^3\right]$	$\frac{3\Gamma(\frac76)\Gamma(\frac56)}{2\pi^{\frac12}(s^3+27a^3)^{\frac12}}$	$\mathrm{Re}\,s>\mathrm{Max}\left[-3\mathrm{Re}\,a,\frac{3\mathrm{Re}\,a+3^{\frac12}\lvert\mathrm{Im}\,a\rvert}{2}\right]$
32.2.1	2	$\frac{1}{t^{\frac12}}{}_0F_2\left[\begin{matrix};\\\frac76,\frac16;\end{matrix}\;-a^3t^3\right]$	$\frac{\Gamma(\frac76)\Gamma(\frac16)s}{2\pi^{\frac12}s^{\frac12}(s^3+27a^3)^{\frac12}}$	$\mathrm{Re}\,s>\mathrm{Max}\left[-3\mathrm{Re}\,a,\frac{3\mathrm{Re}\,a+3^{\frac12}\lvert\mathrm{Im}\,a\rvert}{2}\right]$
	3	$\frac{1}{t^{\frac12}}{}_0F_2\left[\begin{matrix};\\\frac76,\frac56;\end{matrix}\;\frac{t^3}{108}\right]$	$\frac{3\Gamma(\frac76)\Gamma(\frac56)}{\pi^{\frac12}}\int_s^\infty\frac{du}{(4u^3-1)^{\frac12}}$	$\mathrm{Re}\,s>0$
	4	$\frac{1}{t^{\frac12}}{}_0F_2\left[\begin{matrix};\\\frac56,\frac16;\end{matrix}\;\frac{t^3}{108}\right]$	$\frac{\Gamma(\frac56)\Gamma(\frac16)}{\pi^{\frac12}}\int_s^\infty\frac{u\,du}{(4u^3-1)^{\frac12}}$	$\mathrm{Re}\,s>0$
	5	$t^{2\nu}{}_0F_2\left[\begin{matrix};\\2\nu+1,\nu+1;\end{matrix}\;-t^2\right]$	$\frac{\Gamma(2\nu+1)\Gamma(\nu+1)}{s^2}e^{-\frac{2}{s^2}}I_\nu\left(\frac{2}{s^2}\right)$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\,s>0$
	6	$t^{a}{}_0F_2\left[\begin{matrix};\\\mu,\nu;\end{matrix}\;-t^3\right]$	$\frac{\Gamma(a+1)}{s^{a+1}}{}_3F_2\left[\begin{matrix}\frac{a+1}{3},\frac{a+2}{3},\frac{a+3}{3};\\\mu,\nu\;;\end{matrix}\;-\frac{27}{s^3}\right]$	$\mathrm{Re}\,a>-1$ $\mathrm{Re}\,s>\frac32$
	7	$t^{2\mu-1}{}_0F_3\left[\begin{matrix};\\\nu,\mu,\mu+\frac12;\end{matrix}\;-a^2t^2\right]$	$\frac{\Gamma(\nu)\Gamma(2\mu)s^{\nu-1-2\mu}}{(2a)^{\nu-1}}J_{\nu-1}\left(\frac{4a}{s}\right)$	$\mathrm{Re}\,\mu>0$ $\mathrm{Re}\,s>0$
	8	$t^{2\mu-1}{}_0F_3\left[\begin{matrix};\\\nu,\mu,\mu+\frac12;\end{matrix}\;a^2t^2\right]$	$\frac{\Gamma(\nu)\Gamma(2\mu)}{(2a)^{\nu-1}s^{2\mu-\nu+1}}I_{\nu-1}\left(\frac{4a}{s}\right)$	$\mathrm{Re}\,\mu>0$ $\mathrm{Re}\,s>0$
	9	$t^{2\mu-1}{}_1F_2\left[\begin{matrix}\nu;\\\mu,\mu+\frac12;\end{matrix}\;-a^2t^2\right]$	$\frac{\Gamma(2\mu)}{s^{2\mu-2\nu}(s^2+4a^2)^{\nu}}$	$\mathrm{Re}\,\mu>0$ $\mathrm{Re}\,s>2\lvert\mathrm{Im}\,a\rvert$

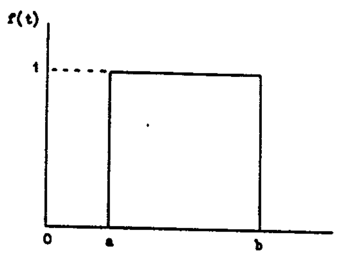
		$f(t)$	$g(s)$	
32.2.1 (Contd.)	10	$t^{3\mu-1}{}_1F_3\left[\begin{matrix}\nu\,; \\ \mu,\mu+\frac{1}{3},\mu+\frac{2}{3}\,;\end{matrix}\ -a^3t^3\right]$	$\dfrac{\Gamma(3\mu)}{s^{3\mu-3\nu}(s^3+27a^3)^{\nu}}$	Re $\mu > 0$ Re $s > 3\lvert \mathrm{Im}\, a\rvert$
	11	$t^{2\mu}{}_1F_4\left[\begin{matrix}1\,; \\ \frac{3}{2},\nu+\frac{3}{2},\mu+\frac{1}{2},\mu+1\,;\end{matrix}\ a^2t^2\right]$	$\dfrac{\pi^{\frac{1}{2}}\Gamma(\nu+\frac{3}{2})\Gamma(2\mu+1)}{2(2a)^{\nu+1}s^{2\mu-\nu}}L_{\nu}\left(\frac{4a}{s}\right)$	Re $\mu > -\frac{1}{2}$ Re $s > 0$
	12	$t^{2\mu}{}_1F_4\left[\begin{matrix}1\,; \\ \frac{3}{2},\nu+\frac{3}{2},\mu+\frac{1}{2},\mu+1\,;\end{matrix}\ -a^2t^2\right]$	$\dfrac{\pi^{\frac{1}{2}}\Gamma(\nu+\frac{3}{2})\Gamma(2\mu+1)}{2(2a)^{\nu+1}s^{2\mu-\nu}}H_{\nu}\left(\frac{4a}{s}\right)$	Re $\mu > -\frac{1}{2}$ Re $s > 0$
	13	$t^{2a-1}{}_3F_2\left[\begin{matrix}1,\frac{1}{2}-\mu+\nu,\frac{1}{2}-\mu-\nu\,; \\ a,\ a+\frac{1}{2}\,;\end{matrix}\ -k^2t^2\right]$	$\Gamma(2a)k^{2\mu-1}s^{1-2a-2\mu}S_{2\mu,2\nu}\left(\frac{s}{k}\right)$	Re $k > 0$ Re $a > 0$ Re $s > 0$
	14	$t^{2a-1}{}_4F_3\left[\begin{matrix}\frac{1}{2}+\mu+\nu,\frac{1}{2}-\mu+\nu,\frac{1}{2}+\mu-\nu,\frac{1}{2}-\mu-\nu\,; \\ \frac{1}{2},\ a,\ a+\frac{1}{2}\,;\end{matrix}\ -\frac{k^2t^2}{4}\right]$	$\dfrac{\pi\Gamma(2a)}{4ks^{2a-1}}\left[e^{(\mu-\nu)\pi i}H^{(1)}_{2\mu}\left(\frac{s}{k}\right)H^{(2)}_{2\nu}\left(\frac{s}{k}\right) + e^{(\nu-\mu)\pi i}H^{(2)}_{2\mu}\left(\frac{s}{k}\right)H^{(1)}_{2\nu}\left(\frac{s}{k}\right)\right]$	Re $a > 0$ Re $k > 0$ Re $s > 0$
	15	$t^{2a-1}{}_4F_3\left[\begin{matrix}1+\mu+\nu,1-\mu+\nu,1+\mu-\nu,1-\mu-\nu\,; \\ \frac{3}{2},\ a,\ a+\frac{1}{2}\,;\end{matrix}\ -\frac{k^2t^2}{4}\right]$	$\dfrac{\pi\Gamma(2a)s^{2-2a}}{8ik^2(\mu^2-\nu^2)}\left[e^{(\mu-\nu)\pi i}H^{(1)}_{2\mu}\left(\frac{s}{k}\right)H^{(2)}_{2\nu}\left(\frac{s}{k}\right) + e^{(\nu-\mu)\pi i}H^{(2)}_{2\mu}\left(\frac{s}{k}\right)H^{(1)}_{2\nu}\left(\frac{s}{k}\right)\right]$	Re $k > 0$ Re $a > 0$ Re $s > 0$
	16	$t^{2a-1}{}_4F_3\left[\begin{matrix}\frac{1}{2}-\mu+\nu,\frac{1}{2}-\mu-\nu,\frac{1}{2}-\mu,1-\mu\,; \\ 1-2\mu,\ a,\ a+\frac{1}{2}\,;\end{matrix}\ -k^2t^2\right]$	$\dfrac{\Gamma(2a)k^{2\mu}}{s^{2a+2\mu}}W_{\mu,\nu}\left(\frac{is}{k}\right)W_{\mu,\nu}\left(-\frac{is}{k}\right)$	Re $k > 0$ Re $a > 0$ Re $s > 0$
	17	$t^{2c-1}{}_pF_{q+2}\left[\begin{matrix}(a)\,; \\ (b),c,c+\frac{1}{2}\,;\end{matrix}\ k^2t^2\right]$	$\dfrac{\Gamma(2c)}{s^{2c}}{}_pF_q\left[\begin{matrix}(a)\,; \\ (b)\,;\end{matrix}\ \frac{4k^2}{s^2}\right]$	$p < q+1$ Re $c > 0$ Re $s > 0$ if $p < q+1$ Re $s > \lvert \mathrm{Re}\, k\rvert$ if $p = q+1$
	18	$t^{2c-1}{}_pF_q\left[\begin{matrix}(a)\,; \\ (b)\,;\end{matrix}\ k^2t^2\right]$	$\dfrac{\Gamma(2c)}{s^{2c}}{}_{p+2}F_q\left[\begin{matrix}(a),\frac{c}{2},\frac{c+1}{2}\,; \\ (b)\,;\end{matrix}\ \frac{4k^2}{s^2}\right]$	$p < q$ Re $c > 0$ Re $s > 0$ if $p < q-1$ Re $s > \lvert \mathrm{Re}\, k\rvert$ if $p = q-1$

		$f(t)$	$g(s)$	
32.2.1 (Contd.)	19	$t^{c}{}_pF_q\left[\begin{matrix}(a)\,; \\ (b)\,;\end{matrix}\ (kt)^n\right]$	$\dfrac{\Gamma(c+1)}{s^{c+1}}{}_{p+n}F_q\left[\begin{matrix}(a),\frac{c+1}{n},\frac{c+2}{n},\ldots,\frac{c+n}{n}\,; \\ (b)\,;\end{matrix}\ \left(\frac{nk}{s}\right)^n\right]$	$n = 1,2,3,\ldots$ $p+n \leq q+1$ Re $c > -1$ Re $s > 0$ if $p+n \leq q$ Re$(s+nke^{2\pi ir/n}) > 0$ $(r = 0,1,\ldots,n-1)$ if $p+n = q+1$
	20	$\frac{1}{t^{3}}\frac{d}{dt}\left\{t^{2\nu}{}_0F_2\left[\begin{matrix}; \\ 2\nu+1,\nu+1\,;\end{matrix}\ -\frac{t^2}{2}\right]\right\}$	$\dfrac{\Gamma(2\nu+1)\Gamma(\nu+1)}{2^{\frac{1}{2}-\nu}s}e^{-\frac{1}{s^2}}I_{\nu}\left(\frac{1}{s^2}\right)$	Re $\nu > 0$ Re $s > 0$
32.3	1	$(1-e^{-t})^c{}_pF_q\left[\begin{matrix}(a)\,; \\ (b)\,;\end{matrix}\ ke^{-t}\right]$	$B(c+1,s){}_{p+1}F_{q+1}\left[\begin{matrix}(a),s\,; \\ (b),s+c+1\,;\end{matrix}\ k\right]$	Re $c > -1$ $p \leq q$ Valid for $p=q+1$ if $\lvert k\rvert < 1$ Re $s > 0$
	2	$(1-e^{-t})^c{}_pF_q\left[\begin{matrix}(a)\,; \\ (b)\,;\end{matrix}\ k(1-e^{-t})\right]$	$B(c+1,s){}_{p+1}F_{q+1}\left[\begin{matrix}(a),c+1\,; \\ (b),s+c+1\,;\end{matrix}\ k\right]$	Re $c > -1$ $p \leq q$ Valid for $p=q+1$ if $\lvert k\rvert < 1$ Re $s > 0$
	3	$(e^t-1)^{a_{m+1}}E\left(m;a_r:n;b_j:\frac{k}{1-e^{-t}}\right)$	$\Gamma(s-a_{m+1})E(m+1;a_r:n;b_j,s:k)$	$n,m = 0,1,2,\ldots$ Re $a_{m+1} > -1$ Re $s >$ Re a_{m+1}
32.3.2	1	$t^{\nu-1}e^{-bt}{}_2F_2\left[\begin{matrix}-n,n+1\,; \\ 1,\ \nu\,;\end{matrix}\ at\right]$	$\dfrac{\Gamma(\nu)P_n\left(\frac{s+b-2a}{s+b}\right)}{(s+b)^{\nu}}$	Re $\nu > 0$ $n = 0,1,2,\ldots$ Re $s > -$ Re b
	2	$t^{\mu-1}e^{-bt}{}_2F_2\left[\begin{matrix}-n,n+2\nu\,; \\ \mu,\nu+\frac{1}{2}\,;\end{matrix}\ at\right]$	$\dfrac{n\,B(n,2\nu)\Gamma(\mu)C_n^{\nu}\left(\frac{s+b-2a}{s+b}\right)}{(s+b)^{\mu}}$	Re $\mu > 0$ Re $\nu > 0$ $n = 0,1,2,\ldots$ Re $s > -$ Re b
32.3.2.1	1	$t^{\mu+\nu-1}e^{-\frac{a^2t^2}{2}}{}_2F_2\left[\begin{matrix}\mu,\ \nu\,; \\ \frac{\mu+\nu}{2},\frac{\mu+\nu+1}{2}\,;\end{matrix}\ \frac{a^2t^2}{4}\right]$	$\dfrac{\Gamma(\mu+\nu)}{a^{\mu+\nu}}e^{\frac{s^2}{4a^2}}D_{-\mu}\left(\frac{s}{a}\right)D_{-\nu}\left(\frac{s}{a}\right)$	Re$(\mu+\nu) > 0$ Re $s > -\infty$

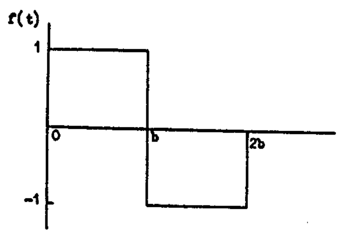
	f(t)		g(s)	
1	1	$o < t < b$	$\frac{1-e^{-bs}}{s}$	Re s > -∞
	0	$t > b$		



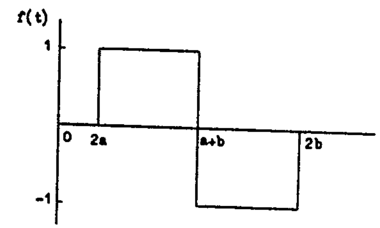
	f(t)		g(s)	
2	0	$o < t < a$	$\frac{e^{-as}-e^{-bs}}{s}$	Re s > -∞
	1	$a < t < b$		
	0	$t > b$		



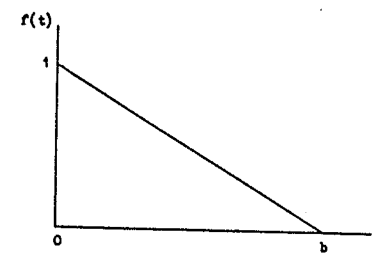
	f(t)		g(s)	
3	1	$o < t < b$	$\frac{(1-e^{-bs})^2}{s}$	Re s > -∞
	-1	$b < t < 2b$		
	0	$t > 2b$		



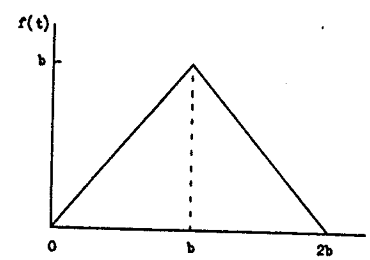
		f(t)		g(s)	
33 (Contd.)	4	0	$o < t < 2a$	$\frac{(e^{-as}-e^{-bs})^2}{s}$	Re s > -∞
		1	$2a < t < a+b$		
		-1	$a+b < t < 2b$		
		0	$t > 2b$		



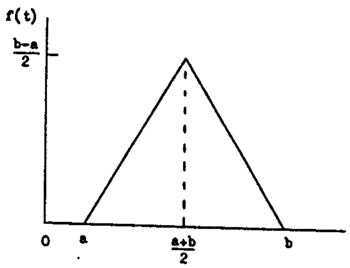
		f(t)		g(s)	
33.1	1	$1-\frac{t}{b}$	$o < t < b$	$\frac{e^{-bs}+bs-1}{bs^2}$	Re s > -∞
		0	$t > b$		



		f(t)		g(s)	
	2	t	$o < t < b$	$\frac{(1-e^{-bs})^2}{s^2}$	Re s > -∞
		2b-t	$b < t < 2b$		
		0	$t > 2b$		



		f(t)		g(s)	
33.1 (Contd.)	3	0	$t<a$	$\dfrac{\left(e^{-\frac{as}{2}}-e^{-\frac{bs}{2}}\right)^2}{s^2}$	Re $s>-\infty$
		$t-a$	$a<t<\frac{a+b}{2}$		
		$b-t$	$\frac{a+b}{2}<t<b$		
		0	$t>b$		



		f(t)		g(s)	
	4	0	$0<t<b$	$e^{as}\left\{\mathrm{Ei}[-(a+c)s]-\mathrm{Ei}[-(a+b)s]\right\}$	Re $s>-\infty$
		$\frac{1}{t+a}$	$b<t<c$		
		0	$t>c$		
		$-a$ not between b and c			
	5	$\frac{1}{2}t^2$	$0<t<1$	$\dfrac{(1-e^{-s})^3}{s^3}$	Re $s>-\infty$
		$\frac{3}{4}-(t-\frac{3}{2})^2$	$1<t<2$		
		$\frac{1}{2}(t-3)^2$	$2<t<3$		
		0	$t>3$		
	6	0	$t<a$	$\dfrac{\left(e^{-\frac{as}{3}}-e^{-\frac{bs}{3}}\right)^3}{s^3}$	Re $s>-\infty$
		$\frac{1}{2}(t-a)^2$	$a<t<\frac{2a+b}{3}$		
		$\frac{1}{12}(b-a)^2-[t-\frac{1}{2}(a+b)]^2$	$\frac{2a+b}{3}<t<\frac{a+2b}{3}$		
		$\frac{1}{2}(b-t)^2$	$\frac{a+2b}{3}<t<b$		
		0	$t>b$		
	7	t^n	$0<t<b$	$\frac{n!}{s^{n+1}}-e^{-bs}\sum_{m=0}^{n}\frac{n!}{m!}\frac{b^m}{s^{n-m+1}}$	$n=0,1,2,\ldots$ Re $s>-\infty$
		0	$t>b$		

		f(t)		g(s)	
33.2	1	$\frac{1}{t^{\frac{1}{2}}}$	$0<t<b$	$\left(\frac{\pi}{s}\right)^{\frac{1}{2}}\mathrm{Erf}[(bs)^{\frac{1}{2}}]$	Re $s>-\infty$
		0	$t>b$		
	2	t^{ν}	$0<t<b$	$\dfrac{\gamma(\nu+1,bs)}{s^{\nu+1}}$	Re $\nu>-1$ Re $s>-\infty$
		0	$t>b$		
	3	$(1+t)^{\nu}$	$0<t<b$	$\sum_{n=0}^{\infty}L_n^{(\nu+1)}(s)\,\dfrac{b^{n+1}}{(n+1)(b+1)^{n+1}}$	Re $s>-\infty$
		0	$t>b$		
	4	$(1+t)^{\nu}$	$0<t<b$	$\sum_{n=0}^{\infty}L_n^{(\nu-n)}(s)\,\dfrac{b^{n+1}}{n+1}$	$b<1$ Re $s>-\infty$
		0	$t>b$		
	5	$(b-t)^{\nu}$	$0<t<b$	$\dfrac{\gamma(\nu+1,-bs)}{s^{\nu+1}e^{bs}}$	Re $\nu>-1$ Re $s>-\infty$
		0	$t>b$		
	6	$t^a(1-t)^b$	$0<t<1$	$\dfrac{\Gamma(a+1)\Gamma(b+1)}{\Gamma(a+b+2)}\,{}_1F_1[a+1;a+b+2;-s]$	Re$(a+b+1)>$ Re $a>-$ Re $s>-\infty$
		0	$t>1$		
	7	0	$0<t<a$	$B(2\mu,2\nu)(b-a)^{\mu+\nu-1}s^{-\mu-\nu}\cdot e^{-\frac{(a+b)s}{2}}M_{\mu-\nu,\mu+\nu-\frac{1}{2}}[(b-a)s]$	Re $\mu>0$ Re $\nu>0$ Re $s>-\infty$
		$(t-a)^{2\mu-1}(b-t)^{2\nu-1}$	$a<t<b$		
		0	$t>b$		
	8	$\dfrac{1}{(1-t^2)^{\frac{1}{2}}}$	$0<t<1$	$\frac{\pi}{2}[I_0(s)-L_0(s)]$	Re $s>-\infty$
		0	$t>1$		
	9	$(b^2-t^2)^{\nu}$	$0<t<b$	$\frac{1}{2}\pi^{\frac{1}{2}}\Gamma(\nu+1)\left(\frac{2b}{s}\right)^{\nu+\frac{1}{2}}\left[I_{\nu+\frac{1}{2}}(bs)-L_{\nu+\frac{1}{2}}(bs)\right]$	Re $\nu>-1$ Re $s>-\infty$
		0	$t>b$		

		$f(t)$	$g(s)$	
33.2 (Contd.)	10	$\begin{cases} \dfrac{1}{(bt-t^2)^{\frac{1}{2}}} & 0<t<b \\ 0 & t>b \end{cases}$	$\pi e^{-\frac{b}{2}s} I_0\left(\frac{bs}{2}\right)$	$\operatorname{Re} s > -\infty$
	11	$\begin{cases} (bt-t^2)^{\nu} & 0<t<b \\ 0 & t>b \end{cases}$	$\pi^{\frac{1}{2}}\Gamma(\nu+1)e^{-\frac{bs}{2}} b^{\nu+\frac{1}{2}} s^{-\nu-\frac{1}{2}} I_{\nu+\frac{1}{2}}\left(\frac{bs}{2}\right)$	$\operatorname{Re}\nu > -1$ $\operatorname{Re} s > -\infty$
	12	$\begin{cases} (bt-t^2)^{\nu} & 0<t<\frac{b}{2} \\ -(bt-t^2)^{\nu} & \frac{b}{2}<t<b \\ 0 & t>b \end{cases}$	$\pi^{\frac{1}{2}}\Gamma(\nu+1)\left(\frac{b}{s}\right)^{\nu+\frac{1}{2}} e^{-\frac{bs}{2}} L_{\nu+\frac{1}{2}}\left(\frac{bs}{2}\right)$	$\operatorname{Re}\nu > -1$ $\operatorname{Re} s > -\infty$
	13	$\begin{cases} \dfrac{t^a(1-t)^b}{(1-ht)^c} & 0<t<1 \\ 0 & t>1 \end{cases}$	$B(a+1,b+1)\,\Phi_1(a+1,c,a+b+2;h,-s)$	$\operatorname{Re} a > -1$ $\operatorname{Re} b > -1$ $\lvert\arg(1-h)\rvert < \pi$ $\operatorname{Re} s > -\infty$
33.2.1	1	$\begin{cases} \dfrac{b-t}{(2bt-t^2)^{\frac{1}{2}}} & 0<t<2b \\ 0 & t>2b \end{cases}$	$\pi b e^{-bs} I_1(bs)$	$\operatorname{Re} s > -\infty$
	2	$\begin{cases} \dfrac{t}{(b^2-t^2)^{\frac{1}{2}}} & 0<t<b \\ 0 & t>b \end{cases}$	$\frac{\pi b}{2}[L_1(bs) - I_1(bs)]+b$	$\operatorname{Re} s > -\infty$
33.3	1	$\begin{cases} e^{it} & 0<t<2n\pi \\ 0 & t>2n\pi \end{cases}$	$\dfrac{1-e^{-2n\pi s}}{s-i}$	$n=1,2,3,\ldots$ $\operatorname{Re} s > -\infty$
	2	$\begin{cases} 0 & 0<t<\log a \\ e^{-e^t} & \log a<t<\log b \\ 0 & t>\log b \end{cases}$	$\gamma(-s,b)-\gamma(-s,a)$ $=\Gamma(-s,a)-\Gamma(-s,b)$	$1<a<b$ $\operatorname{Re} s > -\infty$

		$f(t)$	$g(s)$	
33.4	1	$\begin{cases} \log\frac{t}{b} & 0<t<b \\ 0 & t>b \end{cases}$	$\dfrac{Ei(-bs)-\log(\gamma bs)}{s}$	$\operatorname{Re} s > -\infty$
33.4.1	1	$\begin{cases} \dfrac{\log t}{1+t} & 0<t<1 \\ 0 & t>1 \end{cases}$	$\sum_{n=0}^{\infty}\frac{(-s)^n}{n!}\left[\psi'\left(\frac{n+2}{2}\right)-\psi'\left(\frac{n+1}{2}\right)\right]$	$\operatorname{Re} s > -\infty$
33.4.2.1	1	$\begin{cases} \dfrac{\log\frac{4t(2b-t)}{b^2}}{t^{\frac{1}{2}}(2b-t)^{\frac{1}{2}}} & 0<t<2b \\ 0 & t>2b \end{cases}$	$\pi e^{-bs}\left[\frac{\pi}{2}Y_0(ibs)-\log\left(\frac{\gamma}{2}\right)J_0(ibs)\right]$	$\operatorname{Re} s > -\infty$
33.5	1	$\begin{cases} \sin t & 0<t<\pi \\ 0 & t>\pi \end{cases}$	$\dfrac{1+e^{-\pi s}}{s^2+1}$	$\operatorname{Re} s > -\infty$
	2	$\begin{cases} \sin(at) & 0<t<b\pi \\ 0 & t>b\pi \end{cases}$	$a\dfrac{1-e^{-b\pi s}}{s^2+a^2}$	$\operatorname{Re} s > -\infty$
	3	$\begin{cases} 0 & 0<t<a \\ \sin(ct) & a<t<b \\ 0 & t>b \end{cases}$	$\dfrac{e^{-as}[c\cos(ac)+s\sin(ac)]-e^{-bs}[c\cos(bc)+s\sin(bc)]}{s^2+c^2}$	$\operatorname{Re} s > -\infty$
	4	$\begin{cases} t\sin t & 0<t<\frac{\pi}{2} \\ 0 & t>\frac{\pi}{2} \end{cases}$	$\dfrac{2s-e^{-\frac{\pi}{2}s}[\frac{\pi}{2}s(1+s^2)+s^2-1]}{(1+s^2)^2}$	$\operatorname{Re} s > -\infty$
	5	$\begin{cases} \sin^2(at) & 0<t<b\pi \\ 0 & t>b\pi \end{cases}$	$\dfrac{2a^2(1-e^{-b\pi s})}{s(s^2+4a^2)}$	$\operatorname{Re} s > -\infty$
	6	$\begin{cases} 0 & 0<t<\frac{n\pi}{a} \\ \sin^2(at) & \frac{n\pi}{a}<t<\frac{(n+\frac{1}{2})\pi}{a} \\ 0 & t>\frac{(n+\frac{1}{2})\pi}{a} \end{cases}$	$\dfrac{2a^2}{s(s^2+4a^2)}e^{-\frac{n\pi s}{a}}\left(1-e^{-\frac{\pi s}{2a}}\right)$	$n=1,2,3,\ldots$ $\operatorname{Re} s > -\infty$

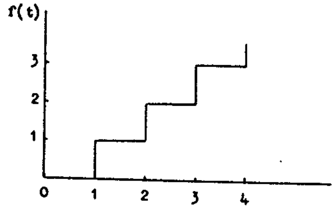
		$f(t)$		$g(s)$	
33.5 (Contd.)	7	0 $\sin^2(ct)$ 0	$0<t<a$ $a<t<b$ $t>b$	$\dfrac{e^{-as}\left[\frac{2c^2}{s}+s\sin^2(ac)+c\sin(2ac)\right]-e^{-bs}\left[\frac{2c^2}{s}+s\sin^2(bc)+c\sin(2bc)\right]}{s^2+4c^2}$	$\mathrm{Re}\, s>-\infty$
	8	$\sin^{2n}t$ 0	$0<t<\frac{\pi}{2}$ $t>\frac{\pi}{2}$	$(2n)!\,\dfrac{1-e^{-\frac{\pi}{2}s}\left\{1+\frac{s^2}{2!}+\dots+\frac{s^2[s^2+2^2]\dots[s^2+(2n-2)^2]}{(2n)!}\right\}}{s[s^2+2^2][s^2+4^2]\dots[s^2+(2n)^2]}$	$n=1,2,3,\dots$ $\mathrm{Re}\, s>-\infty$
	9	$\sin^{2n}t$ 0	$0<t<m\pi$ $t>m\pi$	$\dfrac{(2n)!(1-e^{-m\pi s})}{s(s^2+2^2)(s^2+4^2)\dots(s^2+4n^2)}$	$n,m=1,2,3,\dots$ $\mathrm{Re}\, s>-\infty$
	10	$\sin^{2n+1}t$ 0	$0<t<\frac{\pi}{2}$ $t>\frac{\pi}{2}$	$(2n+1)!\,\dfrac{1-se^{-\frac{\pi}{2}s}\left\{1+\frac{s^2+1^2}{3!}+\dots+\frac{[s^2+1^2][s^2+3^2]\dots[s^2+(2n-1)^2]}{(2n+1)!}\right\}}{[s^2+1^2][s^2+3^2]\dots[s^2(2n+1)^2]}$	$n=1,2,3,\dots$ $\mathrm{Re}\, s>-\infty$
	11	$\sin^{2n+1}t$ 0	$0<t<m\pi$ $t>m\pi$	$\dfrac{(2n+1)!\,[1-(-1)^m e^{-m\pi s}]}{[s^2+1^2][s^2+3^2]\dots[s^2+(2n+1)^2]}$	$n=0,1,2,\dots$ $m=1,2,3,\dots$ $\mathrm{Re}\, s>-\infty$
	12	$\sin^{\nu}t$ 0	$0<t<\pi$ $t>\pi$	$\dfrac{\pi\Gamma(\nu+1)e^{-\frac{\pi s}{2}}}{2^{\nu}\Gamma\left(1+\frac{\nu+is}{2}\right)\Gamma\left(1+\frac{\nu-is}{2}\right)}$	$\mathrm{Re}\,\nu>1$ $\mathrm{Re}\, s>-\infty$
	13	$\cos t$ 0	$0<t<\pi$ $t>\pi$	$\dfrac{s(1+e^{-\pi s})}{s^2+1}$	$\mathrm{Re}\, s>-\infty$
	14	$\cos(at)$ 0	$0<t<\frac{2n\pi}{a}$ $t>\frac{2n\pi}{a}$	$\dfrac{s}{s^2+a^2}\left(1-e^{-\frac{2n\pi s}{a}}\right)$	$n=1,2,3,\dots$ $\mathrm{Re}\, s>-\infty$
	15	0 $\cos(ct)$ 0	$0<t<a$ $a<t<b$ $t>b$	$\dfrac{e^{-as}[s\cos(ac)-c\sin(ac)]-e^{-bs}[s\cos(bc)-c\sin(bc)]}{s^2+c^2}$	$\mathrm{Re}\, s>-\infty$

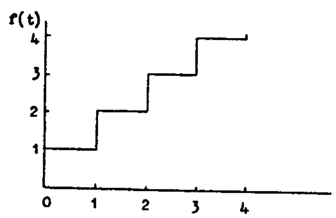
		$f(t)$		$g(s)$	
33.5 (Contd.)	16	$t\cos t$ 0	$0<t<\frac{\pi}{2}$ $t>\frac{\pi}{2}$	$\dfrac{s^2-1+e^{-\frac{\pi}{2}s}\left[\frac{\pi}{2}(s^2+1)+2s\right]}{(s^2+1)^2}$	$\mathrm{Re}\, s>-\infty$
	17	$1-\cos(at)$ 0	$0<t<\frac{2n\pi}{a}$ $t>\frac{2n\pi}{a}$	$\dfrac{a^2\left(1-e^{-\frac{2n\pi s}{a}}\right)}{s(s^2+a^2)}$	$n=1,2,3,\dots$ $\mathrm{Re}\, s>-\infty$
	18	$\cos^2(at)$ 0	$0<t<\frac{n\pi}{a}$ $t>\frac{n\pi}{a}$	$\dfrac{s^2+2a^2}{s(s^2+4a^2)}\left(1-e^{-\frac{n\pi s}{a}}\right)$	$n=1,2,3,\dots$ $\mathrm{Re}\, s>-\infty$
	19	0 $\cos^2(ct)$ 0	$0<t<a$ $a<t<b$ $t>b$	$\dfrac{e^{-as}\left[\frac{2c^2}{s}+s\cos^2(ac)-c\sin(2ac)\right]-e^{-bs}\left[\frac{2c^2}{s}+s\cos^2(bc)-c\sin(2bc)\right]}{s^2+4c^2}$	$\mathrm{Re}\, s>-\infty$
	20	0 $\cos^2(at)$ 0	$0<t<\frac{n\pi}{a}$ $\frac{n\pi}{a}<t<\frac{(n+\frac{1}{2})\pi}{a}$ $t\ \frac{(n+\frac{1}{2})\pi}{a}$	$\dfrac{s^2+2a^2}{s(s^2+4a^2)}e^{-\frac{n\pi s}{a}}\left(1-e^{-\frac{\pi s}{2a}}\right)$	$n=1,2,3,\dots$ $\mathrm{Re}\, s>-\infty$
	21	$\cos^{2n}t$ 0	$0<t<\frac{\pi}{2}$ $t>\frac{\pi}{2}$	$(2n)!\,\dfrac{-e^{-\frac{\pi}{2}s}+1+\frac{s^2}{2!}+\dots+\frac{s^2[s^2+2^2]\dots[s^2+4(n-1)^2]}{(2n)!}}{s(s^2+2^2)(s^2+4^2)\dots(s^2+4n^2)}$	$n=1,2,3,\dots$ $\mathrm{Re}\, s>-\infty$
	22	0 $\cos^{2n}t$ 0	$0<t<\frac{\pi}{2}$ $\frac{\pi}{2}<t<(m+\frac{1}{2})\pi$ $t\ (m+\frac{1}{2})\pi$	$\dfrac{(2n)!\,e^{-\frac{\pi}{2}s}\left(1-e^{-m\pi s}\right)}{s(s^2+2^2)(s^2+4^2)\dots(s^2+4n^2)}$	$n,m=1,2,3,\dots$
33.5	23	$\cos^{2n+1}t$ 0	$0<t<\frac{\pi}{2}$ $t>\frac{\pi}{2}$	$(2n+1)!\,\dfrac{e^{-\frac{\pi}{2}s}+s\left\{1+\frac{s^2+1^2}{3!}+\dots+\frac{[s^2+1^2][s^2+3^2]\dots[s^2+(2n-1)^2]}{(2n+1)!}\right\}}{[s^2+1^2][s^2+3^2]\dots[s^2+(2n+1)^2]}$	$n=0,1,2,\dots$ $\mathrm{Re}\, s>-\infty$

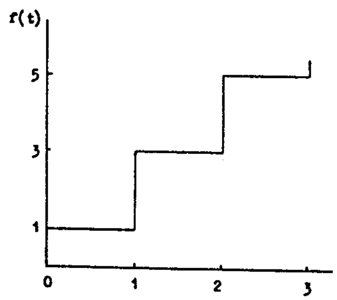
		$f(t)$	$g(s)$	
33.5.1	1	$\begin{cases} \sin(at+b) & 0<t<\frac{2n\pi}{a} \\ 0 & t>\frac{2n\pi}{a} \end{cases}$	$\dfrac{(1-e^{-\frac{2n\pi s}{a}})(a\cos b+s\sin b)}{s^2+a^2}$	$n=1,2,3,\ldots$ $\operatorname{Re} s>-\infty$
	2	$\begin{cases} \cos(at+b) & 0<t<\frac{2n\pi}{a} \\ 0 & t>\frac{2n\pi}{a} \end{cases}$	$\dfrac{(1-e^{-\frac{2n\pi s}{a}})(s\cos b-a\sin b)}{s^2+a^2}$	$n=1,2,3,\ldots$ $\operatorname{Re} s>-\infty$
	3	$\begin{cases} 0 & 0<t<b \\ \cos(t-b) & b<t<b+2n\pi \\ 0 & t>b+2n\pi \end{cases}$	$\dfrac{s e^{-bs}(1-e^{-2n\pi s})}{s^2+1}$	$n=1,2,3,\ldots$ $\operatorname{Re} s>-\infty$
33.5.2	1	$\begin{cases} \dfrac{\cos[a(2t-t^2)^{\frac{1}{2}}]}{(2t-t^2)^{\frac{1}{2}}} & 0<t<2 \\ 0 & t>2 \end{cases}$	$\pi e^{-s} J_0[(a^2-s^2)^{\frac{1}{2}}]$ $=\pi e^{-s} I_0[(s^2-a^2)^{\frac{1}{2}}]$	$\operatorname{Re} s>-\infty$
33.6	1	$\begin{cases} \sin^{-1}\frac{t}{b} & 0<t<b \\ 0 & t>b \end{cases}$	$\frac{\pi}{2s}[I_0(bs)-L_0(bs)]$	$\operatorname{Re} s>-\infty$
	2	$\begin{cases} t\sin^{-1} t & 0<t<1 \\ 0 & t>1 \end{cases}$	$\frac{\pi}{2s^2}[L_0(s)-I_0(s)+sL_1(s)$ $-sI_1(s)]+\frac{1}{s}$	$\operatorname{Re} s>-\infty$
33.6.5.2	1	$\begin{cases} \dfrac{\cos[(2n+\frac{1}{2})\cos^{-1}\frac{t}{b}]}{t^{\frac{1}{2}}(b^2-t^2)^{\frac{1}{2}}} & 0<t<b \\ 0 & t>b \end{cases}$	$(-1)^n(\frac{\pi}{2}s)^{\frac{1}{2}} I_n(\frac{bs}{2})K_{n+\frac{1}{2}}(\frac{bs}{2})$	$n=0,1,2,\ldots$ $\operatorname{Re} s>-\infty$
	2	$\begin{cases} \dfrac{\cos(\nu\cos^{-1}\frac{t}{b})}{t^{\frac{1}{2}}(b^2-t^2)^{\frac{1}{2}}} & 0<t<b \\ 0 & t>b \end{cases}$	$(\frac{\pi}{2})^{\frac{3}{2}} s^{\frac{1}{2}}\Big[I_{\frac{\nu}{2}-\frac{1}{4}}\left(\frac{bs}{2}\right)I_{-\frac{\nu}{2}-\frac{1}{4}}\left(\frac{bs}{2}\right)$ $-I_{\frac{\nu}{2}+\frac{1}{4}}\left(\frac{bs}{2}\right)I_{-\frac{\nu}{2}+\frac{1}{4}}\left(\frac{bs}{2}\right)\Big]$	$\operatorname{Re} s>-\infty$

		$f(t)$	$g(s)$	
33.6.5.2.1	1	$\begin{cases} 0 & 0<t<a \\ \dfrac{\cos\left(n\cos^{-1}\frac{2t-a-b}{b-a}\right)}{(t-a)^{\frac{1}{2}}(b-t)^{\frac{1}{2}}} & a<t<b \\ 0 & t>b \end{cases}$	$\pi e^{-\frac{1}{2}(a+b)s} I_n[\frac{1}{2}(b-a)s]$	$n=0,1,2,\ldots$ $\operatorname{Re} s>-\infty$
33.7	1	$\begin{cases} 0 & 0<t<a \\ \sinh(ct) & a<t<b \\ 0 & t>b \end{cases}$	$\dfrac{\{e^{-as}[c\cosh(ac)+s\sinh(ac)] - e^{-bs}[c\cosh(bc)+s\sinh(bc)]\}}{s^2-c^2}$	$\operatorname{Re} s>-\infty$
	2	$\begin{cases} \dfrac{\sinh(at)}{t} & 0<t<1 \\ 0 & t>1 \end{cases}$	$\frac{1}{2}\log\frac{s+a}{s-a}+\frac{1}{2}\mathrm{Ei}(a-s)-\frac{1}{2}\mathrm{Ei}(-a-s)$	$\operatorname{Re} s>-\infty$
	3	$\begin{cases} 0 & 0<t<a \\ \sinh^2(ct) & a<t<b \\ 0 & t>b \end{cases}$	$\dfrac{\{e^{-as}[s\sinh^2(ac)+\frac{2c^2}{s}+c\sinh(2ab)] - e^{-bs}[s\sinh^2(bc)+\frac{2c^2}{s}+c\sinh(2bc)]\}}{s^2-4c^2}$	$\operatorname{Re} s>-\infty$
	4	$\begin{cases} 0 & 0<t<a \\ \cosh(ct) & a<t<b \\ 0 & t>b \end{cases}$	$\dfrac{\{e^{-as}[s\cosh(ac)+c\sinh(ac)] - e^{-bs}[s\cosh(bc)+c\sinh(bc)]\}}{s^2-c^2}$	$\operatorname{Re} s>-\infty$
	5	$\begin{cases} 0 & 0<t<a \\ \cosh^2(ct) & a<t<b \\ 0 & t>b \end{cases}$	$\dfrac{\{e^{-as}[s\cosh^2(ac)-\frac{2c^2}{s}+c\sinh(2ac)] - e^{-bs}[s\cosh^2(bc)-\frac{2c^2}{s}+c\sinh(2bc)]\}}{s^2-4c^2}$	$\operatorname{Re} s>-\infty$
33.9.1	1	$\begin{cases} P_n(1-t) & 0<t<2 \\ 0 & t>2 \end{cases}$	$\left(\frac{2\pi}{s}\right)^{\frac{1}{2}} e^{-s} I_{n+\frac{1}{2}}(s)$	$n=0,1,2,\ldots$ $\operatorname{Re} s>-\infty$
33.9.2.1	1	$\begin{cases} [t(b-t)]^{\nu-\frac{1}{2}} C_n^{\nu}\left(\frac{2t}{b}-1\right) & 0<t<b \\ 0 & t>b \end{cases}$	$\dfrac{(-1)^n\pi\Gamma(2\nu+n)}{n!\,\Gamma(\nu)}\left(\frac{b}{4s}\right)^{\nu} e^{-\frac{bs}{2}} I_{\nu+n}\left(\frac{bs}{2}\right)$	$\operatorname{Re}\nu>-\frac{1}{2}$ $n=0,1,2,\ldots$ $\operatorname{Re} s>-\infty$
33.10.2	1	$\begin{cases} t^{-\frac{\nu}{2}} J_{\nu}(2t^{\frac{1}{2}}) & 0<t<b \\ 0 & t>b \end{cases}$	$\sum_{n=0}^{\infty}\dfrac{(-1)^n b^{n+1} s^n L_n^{(\nu)}(-\frac{1}{s})}{(n+1)\,\Gamma(n+\nu+1)}$	$\operatorname{Re} s>-\infty$

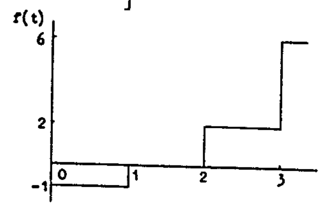
		$f(t)$		$g(s)$	
33.12.9.2.1	1	$(2t-t^2)^{\frac{\nu}{2}} C_n^{\nu+\frac{1}{2}}(t-1) I_\nu[a(2t-t^2)^{\frac{1}{2}}]$	$0<t<2$	$\dfrac{(-1)^n(2\pi)^{\frac{1}{2}} a^\nu e^{-s} C_n^{\nu+\frac{1}{2}}\left[\frac{s}{(s^2+a^2)^{\frac{1}{2}}}\right]}{(s^2+a^2)^{\frac{\nu}{2}+\frac{1}{4}}}$	$\mathrm{Re}\,\nu>-1$
		0	$t>2$	$\cdot I_{\nu+\frac{1}{2}+n}[(s^2+a^2)^{\frac{1}{2}}]$	$n=0,1,2,\ldots$
					$\mathrm{Re}\, s>-\infty$
34	1	$[t]$		$\dfrac{1}{s(e^s-1)}$	$\mathrm{Re}\, s>0$
34.1	1	$[t+1]$		$\dfrac{1}{s(1-e^{-s})}$	$\mathrm{Re}\, s>0$
	2	$[2t+1]$		$\dfrac{1}{s}\coth\dfrac{s}{2}$	$\mathrm{Re}\, s>0$

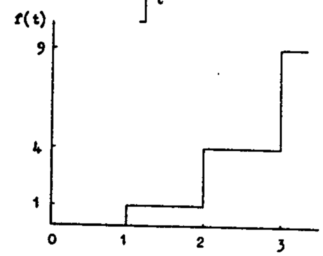


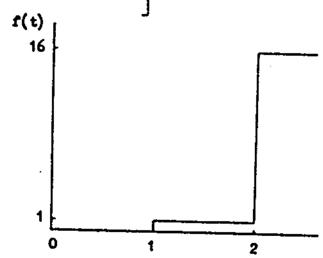




		$f(t)$	$g(s)$	
34.1 (Contd.)	3	$[t(t-1)]$	$\dfrac{2}{s^2(e^s-1)}$	$\mathrm{Re}\, s>0$
	4	$[t^2]$	$\dfrac{e^s+1}{s(e^s-1)^2}$	$\mathrm{Re}\, s>c$
	5	$[t^3]$	$\dfrac{e^{2s}+4e^s+1}{s(e^s-1)^3}$	$\mathrm{Re}\, s>0$
	6	$[t^4]$	$\dfrac{e^{3s}+11e^{2s}+11e^s+1}{s(e^s-1)^4}$	$\mathrm{Re}\, s>0$

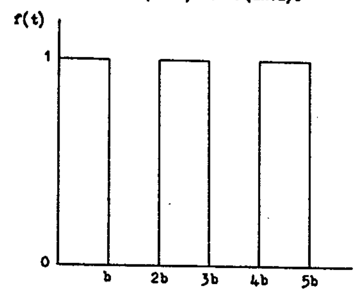




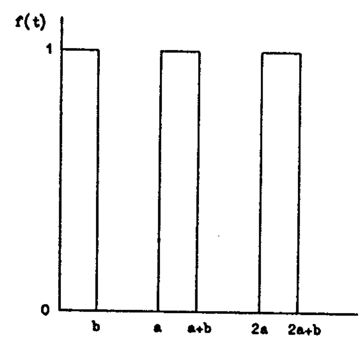


		$f(t)$	$g(s)$	
34.1 (Contd.)	7	$\int t^n$	$(-1)^n \frac{1-e^{-s}}{s} \frac{d^n}{ds^n}\left(\frac{1}{1-e^{-s}}\right)$	$n = 0,1,2,\ldots$ $\operatorname{Re} s > 0$
34.3	1	$\int a^t$	$\frac{e^s-1}{s(e^s-a)}$	$\operatorname{Re} s > \operatorname{Re}(\log a)$
	2	$\int 1-a^t$	$\frac{1-a}{s(e^s-a)}$	$\operatorname{Re} s < \operatorname{Max} 0, \operatorname{Re}(\log a)$
	3	$\int \frac{a^t-1}{a-1} - \int t$	$\frac{a-1}{s(e^s-1)(e^s-a)}$	$\operatorname{Re} s > \operatorname{Max} 0, \operatorname{Re}(\log a)$
	4	$\int ca^t - db^t$	$\frac{(e^s-1)\{(c-d)e^s-cb+da\}}{s(e^s-a)(e^s-b)}$	$\operatorname{Re} s > \operatorname{Max} \operatorname{Re}(\log a), \operatorname{Re}(\log b)$
34.3.1	1	$\int ta^{t-1}$	$\frac{e^s-1}{s(e^s-a)^2}$	$\operatorname{Re} s > \operatorname{Re}(\log a)$
	2	$\int a^{t-1}-b^{t-1}$	$-\frac{a-b}{ab} \frac{e^s-1}{s} \frac{e^s-(a+b)}{(e^s-a)(e^s-b)}$	$\operatorname{Re} s > \operatorname{Max} \operatorname{Re}(\log a), \operatorname{Re}(\log b)$
	3	$\int t^2 a^{t-1}$	$\frac{(e^s-1)(e^s+a)}{s(e^s-a)^3}$	$\operatorname{Re} s > \operatorname{Re}(\log a)$
	4	$\int t(t-1)a^{t-2}$	$\frac{2(e^s-1)}{s(e^s-a)^3}$	$\operatorname{Re} s > \operatorname{Re}(\log a)$
34.5	1	$\int \sin(at)$	$\frac{(e^s-1)\sin a}{s(e^{2s}-2e^s\cos a+1)}$	$\operatorname{Re} s > \lvert \operatorname{Im} a \rvert$
	2	$\int \cos(at)$	$\frac{(e^s-1)(e^s-\cos a)}{s(e^{2s}-2e^s\cos a+1)}$	$\operatorname{Re} s > \lvert \operatorname{Im} a \rvert$
34.5.3	1	$\int a^t \sin(bt)$	$\frac{a\sin b\,(e^s-1)}{s(e^{2s}-2ae^s\cos b+a^2)}$	$\operatorname{Re} s > \operatorname{Re}(\log a) + \lvert \operatorname{Im} b \rvert$
	2	$\int a^t \cos(bt)$	$\frac{(e^s-1)(e^s-a\cos b)}{s(e^{2s}-2ae^s\cos b+a^2)}$	$\operatorname{Re} s > \operatorname{Re}(\log a) + \lvert \operatorname{Im} b \rvert$

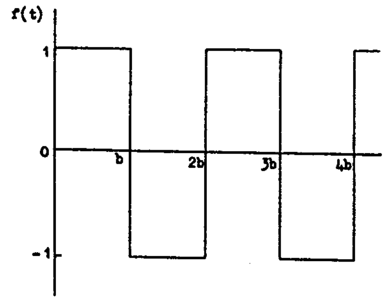
		$f(t)$	$g(s)$	
34.21	1	$\int \binom{t}{n}$	$\frac{1}{s(e^s-1)^n}$	$n = 0,1,2,\ldots$ $\operatorname{Re} s > 0$
34.21.1	1	$\int \frac{\Gamma(t+a+1)}{\Gamma(t+a+1-n)}$	$\frac{n!\, e^{as}}{s(e^s-1)^n}$	$n = 0,1,2,\ldots$ $a < n$ $\operatorname{Re} s > 0$
34.21.3.1	1	$\int \binom{t}{n} a^{t-n}$	$\frac{e^s-1}{s(e^s-a)^{n+1}}$	$n = 0,1,2,\ldots$ $\operatorname{Re} s > \operatorname{Re}(\log a)$
35	1	1 $\quad 2nb < t < (2n+1)b$ 0 $\quad (2n+1)b < t < (2n+2)b$	$\frac{1}{s(1+e^{-bs})}$	$n = 0,1,2,\ldots$ $\operatorname{Re} s > 0$



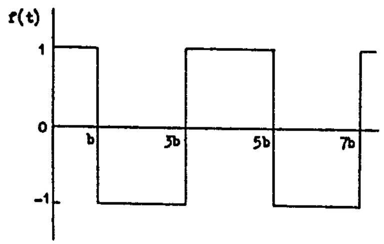
		$f(t)$	$g(s)$	
	2	1 $\quad na < t < na+b$ 0 $\quad na+b < t < (n+1)a$	$\frac{1-e^{-bs}}{s(1-e^{-as})}$	$n = 0,1,2,\ldots$ $\operatorname{Re} s > 0$



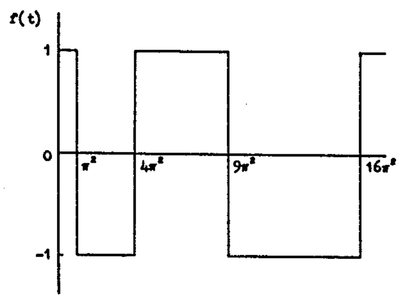
		f(t)	g(s)	
35 (Contd.)	3	1 $2nb < t < (2n+1)b$ -1 $(2n+1)b < t < (2n+2)b$	$\frac{1}{s}\tanh\frac{bs}{2}$ $= \frac{1-e^{-bs}}{s(1+e^{-bs})}$	$n = 0,1,2,\ldots$ $\mathrm{Re}\, s > 0$



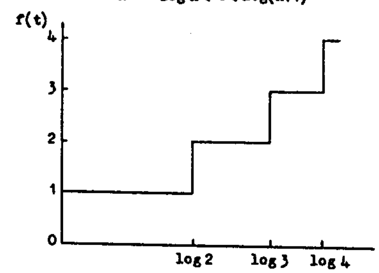
		f(t)	g(s)	
	4	1 $0 < t < b$ -1 $(4n-3)b < t < (4n-1)b$ 1 $(4n-1)b < t < (4n+1)b$	$\frac{1-\mathrm{sech}(bs)}{s}$	$n = 1,2,3,\ldots$ $\mathrm{Re}\, s > 0$



		f(t)	g(s)	
	5	1 $(2n)^2\pi^2 < t < (2n+1)^2\pi^2$ -1 $(2n+1)^2\pi^2 < t < (2n+2)^2\pi^2$	$\frac{1}{s}\theta_4(0\|s)$	$n = 0,1,2,\ldots$ $\mathrm{Re}\, s > 0$

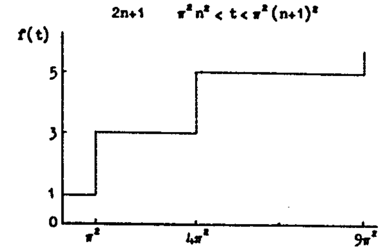


		f(t)	g(s)	
35 (Contd.)	6	n $\log n < t < \log(n+1)$	$\frac{\zeta(s)}{s}$	$n = 1,2,3,\ldots$ $\mathrm{Re}\, s > 1$

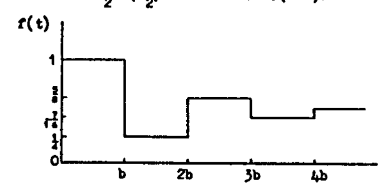


		f(t)	g(s)	
	7	n $\log(2n-1) < t < \log(2n+1)$	$\frac{1}{s}(1-2^{1-s})\zeta(s-1)$	$n = 1,2,3,\ldots$ $\mathrm{Re}\, s > 0$

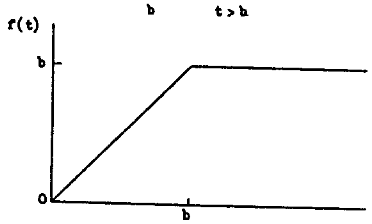
		f(t)	g(s)	
	8	$2n+1$ $\pi^2 n^2 < t < \pi^2(n+1)^2$	$\frac{1}{s}\theta_3(0\|s)$	$n = 0,1,2,\ldots$ $\mathrm{Re}\, s > 0$



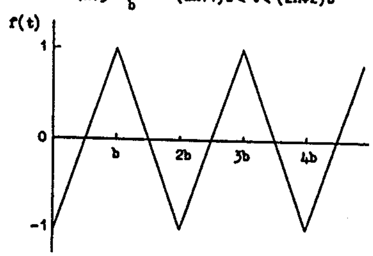
		f(t)	g(s)	
	9	$\frac{1}{2}-(-\frac{1}{2})^{n+1}$ $nb < t < (n+1)b$	$\frac{4-e^{-bs}}{s(4+2e^{-bs})}$	$n = 0,1,2,\ldots$ $\mathrm{Re}\, s > 0$



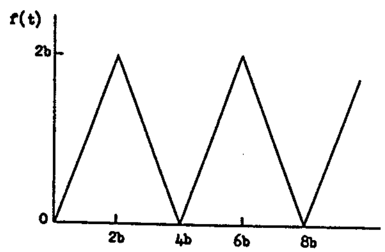
		$f(t)$	$g(s)$	
35 (Contd.)	10	$\binom{n}{m}$ $\quad nb<t<(n+1)b$	$\frac{e^{-bs}}{s(e^{bs}-1)^m}$	$n=0,1,2,\ldots$ $m=0,1,2,\ldots$
	11	$\sum_{1\le n\le e^{t}} \frac{1}{n^a}$	$\frac{1}{s}\zeta(s+a)$	Re $s>-$ Re $a-1$
	12	$t \quad 0<t<b$ $b \quad t>b$	$\frac{1-e^{-bs}}{s^2}$	Re $s>0$



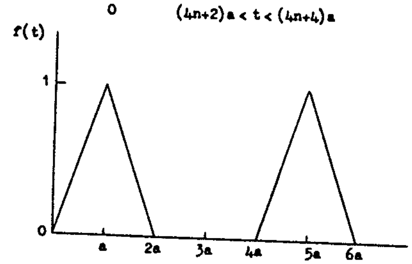
		$f(t)$	$g(s)$	
35.1	1	$\frac{2t}{b}-4n-1 \quad 2nb<t<(2n+1)b$ $4n+3-\frac{2t}{b} \quad (2n+1)b<t<(2n+2)b$	$\frac{2(1-e^{-as})}{as^2(1+e^{-as})}-\frac{1}{s}$	$n=0,1,2,\ldots$ Re $s>0$



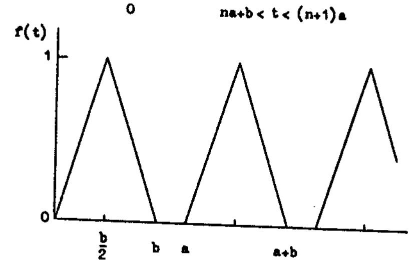
		$f(t)$	$g(s)$	
	2	$b-(-1)^n(2bn+b-t) \quad 2nb<t<2(n+1)b$	$\frac{\tanh(bs)}{s^2}$	$n=0,1,2,\ldots$ Re $s>0$



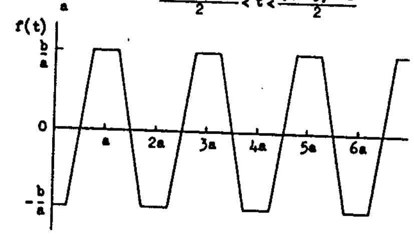
		$f(t)$	$g(s)$	
35.1 (Contd.)	3	$\frac{t-4na}{a} \quad 4na<t<(4n+1)a$ $\frac{4na+2a-t}{a} \quad (4n+1)a<t<(4n+2)a$ $0 \quad (4n+2)a<t<(4n+4)a$	$\frac{(1-e^{-as})^2}{as^2(1-e^{-4as})}$	$n=0,1,2,\ldots$ Re $s>0$



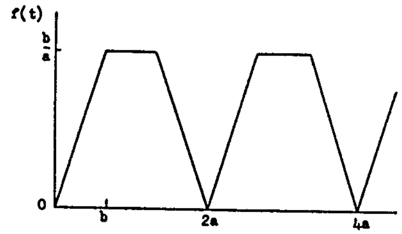
		$f(t)$	$g(s)$	
	4	$\frac{2(t-na)}{b} \quad na<t<na+\frac{b}{2}$ $\frac{2(b+na-t)}{b} \quad na+\frac{b}{2}<t<na+b$ $0 \quad na+b<t<(n+1)a$	$\frac{2(1-e^{-\frac{bs}{2}})^2}{bs^2(1-e^{-as})}$	$n=0,1,2,\ldots$ Re $s>0$



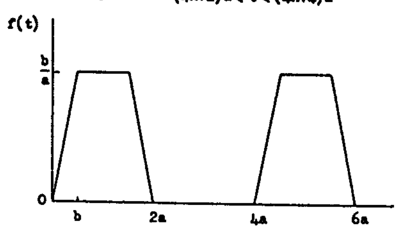
		$f(t)$	$g(s)$	
	5	$-\frac{b}{a} \quad 0<t<\frac{a-b}{2}$ $\frac{2t}{a}-(4n+1) \quad \frac{(4n+1)a-b}{2}<t<\frac{(4n+1)a+b}{2}$ $\frac{b}{a} \quad \frac{(4n+1)a+b}{2}<t<\frac{(4n+3)a-b}{2}$ $-\frac{2t}{a}+(4n+3) \quad \frac{(4n+3)a-b}{2}<t<\frac{(4n+3)a+b}{2}$ $-\frac{b}{a} \quad \frac{(4n+3)a+b}{2}<t<\frac{(4n+5)a-b}{2}$	$\frac{2(e^{-\frac{a-b}{2}s}-e^{-\frac{a+b}{2}s})}{as^2(1+e^{-as})}-\frac{b}{as}$	$n=0,1,2,\ldots$ Re $s>0$



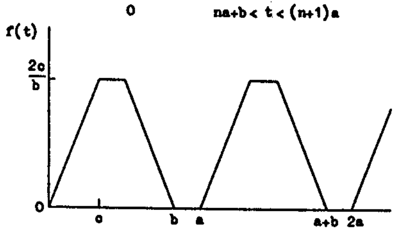
		f(t)		g(s)	
35.1 (Contd.)	6	$\frac{t-2na}{a}$	$2na < t < 2na+b$	$\frac{(1-e^{-bs})[1-e^{-(2-\frac{b}{a})as}]}{as^2(1-e^{-2as})}$	$n=0,1,2,\ldots$ Re $s>0$
		$\frac{b}{a}$	$2na+b < t < (2n+2)a-b$		
		$\frac{(2n+2)a-t}{a}$	$(2n+2)a-b < t < (2n+2)a$		



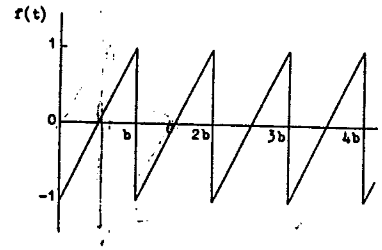
7	$\frac{t-4na}{a}$	$4na < t < 4na+b$	$\frac{(1-e^{-bs})[1-e^{-(2-\frac{b}{a})as}]}{as^2(1-e^{-4as})}$	$n=0,1,2,\ldots$ Re $s>0$
	$\frac{b}{a}$	$4na+b < t < (4n+2)a-b$		
	$\frac{(4n+2)a-t}{a}$	$(4n+2)a-b < t < (4n+2)a$		
	0	$(4n+2)a < t < (4n+4)a$		



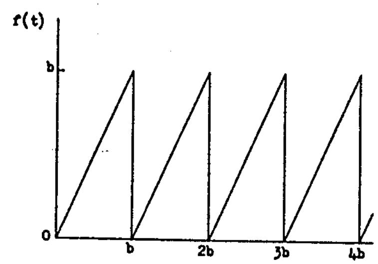
8	$\frac{2(t-na)}{b}$	$na < t < na+c$	$2\,\frac{1-e^{-cs}-e^{-(b-c)s}+e^{-bs}}{bs^2(1-e^{-as})}$	$n=0,1,2,\ldots$ Re $s>0$
	$\frac{2c}{b}$	$na+c < t < na+b-c$		
	$\frac{2(b+na-t)}{b}$	$na+b-c < t < na+b$		
	0	$na+b < t < (n+1)a$		



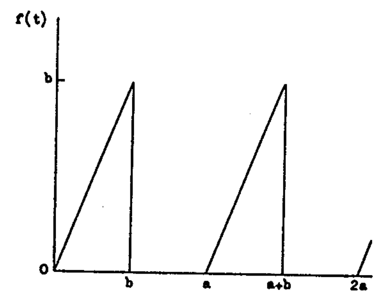
		f(t)		g(s)	
35.1 (Contd.)	9	$\frac{2t}{b}-2n-1$	$nb < t < (n+1)b$	$\frac{2}{bs^2}-\frac{1+e^{-bs}}{s(1-e^{-bs})}$	$n=0,1,2,\ldots$ Re $s>0$



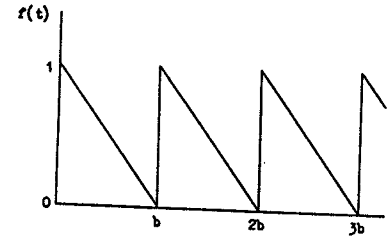
10	$t-nb$	$nb < t < (n+1)b$	$\frac{1}{s^2}-\frac{b}{2s}[\coth\frac{bs}{2}-1]$ $=\frac{e^{bs}-bs-1}{s^2(e^{bs}-1)}$	$n=0,1,2,\ldots$ Re $s>0$



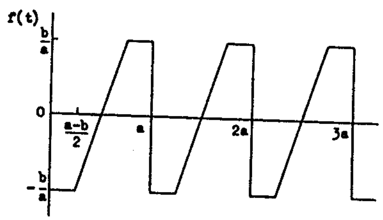
11	$t-an$	$na < t < na+b$	$\frac{b}{a}\,\frac{1-(1+bs)e^{-bs}}{s^2(1-e^{-as})}$	$n=0,1,2,\ldots$ Re $s>0$
	0	$na+b < t < (n+1)a$		



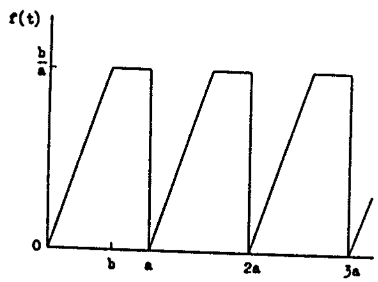
	$f(t)$		$g(s)$	
35.1 (Contd.) 12	$n+1-\frac{t}{b}$	$nb < t < (n+1)b$	$\frac{e^{-bs}+bs-1}{bs^2(1-e^{-bs})}$	$n=0,1,2,\ldots$; $\mathrm{Re}\, s > 0$



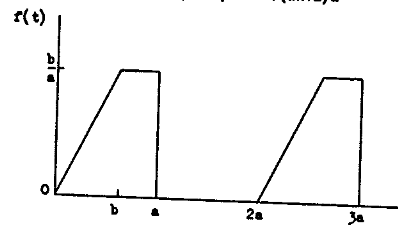
	$f(t)$		$g(s)$	
13	$-\frac{b}{a}$	$na < t < \frac{(2n+1)a-b}{2}$	$\frac{2e^{-\frac{as}{2}}\left(e^{\frac{bs}{2}}-e^{-\frac{bs}{2}}\right)-bs(1+e^{-as})}{as^2(1-e^{-as})}$	$n=0,1,2,\ldots$; $\mathrm{Re}\, s > 0$
	$\frac{2t}{a}-(2n+1)$	$\frac{(2n+1)a-b}{2} < t < \frac{(2n+1)a+b}{2}$		
	$\frac{b}{a}$	$\frac{(2n+1)a+b}{2} < t < (n+1)a$		



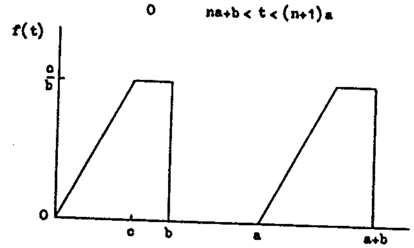
	$f(t)$		$g(s)$	
14	$\frac{t-na}{a}$	$na < t < na+b$	$\frac{1-e^{-bs}-bse^{-as}}{as^2(1-e^{-as})}$	$n=0,1,2,\ldots$; $\mathrm{Re}\, s > 0$
	$\frac{b}{a}$	$na+b < t < (n+1)a$		



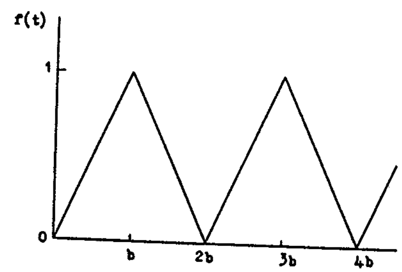
	$f(t)$		$g(s)$	
35.1 (Contd.) 15	$\frac{t-2na}{a}$	$2na < t < 2na+b$	$\frac{1-e^{-bs}-bse^{-as}}{as^2(1-e^{-2as})}$	$n=0,1,2,\ldots$; $\mathrm{Re}\, s > 0$
	$\frac{b}{a}$	$2na+b < t < (2n+1)a$		
	0	$(2n+1)a < t < (2n+2)a$		



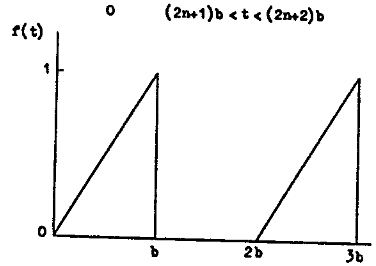
	$f(t)$		$g(s)$	
16	$\frac{t-na}{b}$	$na < t < na+c$	$\frac{1-e^{-cs}-cse^{-bs}}{bs^2(1-e^{-as})}$	$n=0,1,2,\ldots$; $\mathrm{Re}\, s > 0$
	$\frac{c}{b}$	$na+c < t < na+b$		
	0	$na+b < t < (n+1)a$		



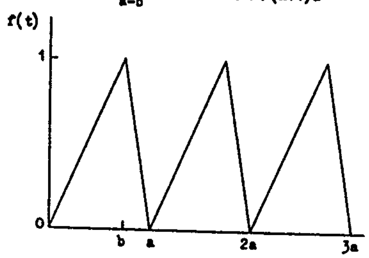
	$f(t)$		$g(s)$	
17	$\frac{t}{b}-2n$	$2nb < t < (2n+1)b$	$\frac{1-e^{-bs}}{bs^2(1+e^{-bs})}$	$n=0,1,2,\ldots$; $\mathrm{Re}\, s > 0$
	$2(n+1)-\frac{t}{b}$	$(2n+1)b < t < (2n+2)b$		



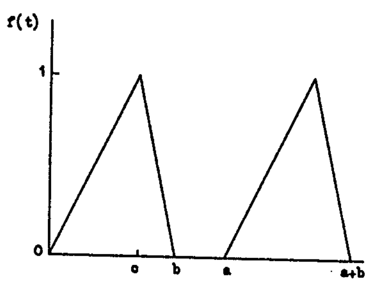
		f(t)		g(s)	
35.1 (Contd.)	18	$\frac{t}{b}-2n$	$2nb < t < (2n+1)b$	$\frac{1-(1+bs)e^{-bs}}{bs^2(1-e^{-2bs})}$	$\underline{n=0,1,2,\ldots}$ Re $s>0$
		0	$(2n+1)b < t < (2n+2)b$		



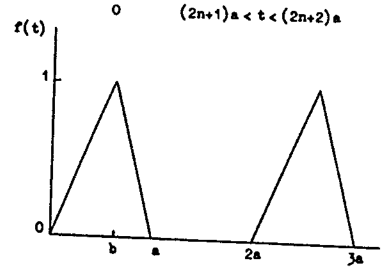
	19	$\frac{t-an}{b}$	$na < t < na+b$	$\frac{1}{(a-b)s^2}\left[\frac{a(1-e^{-bs})}{b(1-e^{-as})}-1\right]$	$\underline{n=0,1,2,\ldots}$ Re $s>0$
		$\frac{a(n+1)-t}{a-b}$	$na+b < t < (n+1)a$		



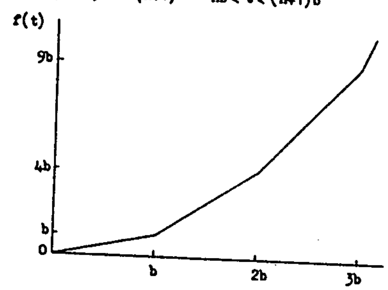
	20	$\frac{t-na}{c}$	$na < t < na+c$	$\frac{b(1-e^{-cs})-c(1-e^{-bs})}{c(b-c)s^2(1-e^{-as})}$	$\underline{n=0,1,2,\ldots}$ Re $s>0$
		$\frac{na+b-t}{b-c}$	$na+c < t < na+b$		
		0	$na+b < t < (n+1)a$		



		f(t)		g(s)	
35.1 (Contd.)	21	$\frac{t-2na}{b}$	$2na < t < 2na+b$	$\frac{a(1-e^{-bs})-b(1-e^{-as})}{b(a-b)s^2(1-e^{-2as})}$	$\underline{n=0,1,2,\ldots}$ Re $s>0$
		$\frac{(2n+1)a-t}{a-b}$	$2na+b < t < (2n+1)a$		
		0	$(2n+1)a < t < (2n+2)a$		



	22	$(2n+1)t-bn(n+1)$	$nb < t < (n+1)b$	$\frac{\coth\left(\frac{bs}{2}\right)}{s^2}$	$\underline{n=0,1,2,\ldots}$ Re $s>0$



	23	$\frac{1}{2}t^2$	$0 < t < 1$	$\frac{(1-e^{-s})^2}{s^3}$	Re $s>0$
		$1-\frac{1}{2}(t-2)^2$	$1 < t < 2$		
		1	$t > 2$		
	24	$(t-nb)^2$	$nb < t < (n+1)b$	$\frac{2}{s^3}-\frac{b(b+2s)}{s^2(e^{bs}-1)}$	$\underline{n=0,1,2,\ldots}$ Re $s>0$
35.2	1	$[b(t-nb)-(t-nb)^2]^{\nu}$	$nb < t < (n+1)b$	$\frac{\pi\,\mathrm{cosech}\,\frac{bs}{2}\,\Gamma(2\nu+1)}{\Gamma(\nu+\frac{1}{2})}\left(\frac{b}{4s}\right)^{\nu+\frac{1}{2}} \cdot I_{\nu+\frac{1}{2}}\left(\frac{bs}{2}\right)$	$\underline{n=0,1,2,\ldots}$ Re $\nu>-1$ Re $s>0$

		$f(t)$	$g(s)$	
35.2 (Contd.)	2	$[2b(t-2nb)-(t-2nb)^2]^\nu$ $\quad 2nb<t<(2n+1)b$ $-[2b(t-2nb)-(t-2nb)^2]^\nu$ $\quad (2n+1)b<t<(2n+2)b$	$\pi\left(\frac{b}{2s}\right)^{\nu+\frac{1}{2}} \frac{\Gamma(2\nu+1)}{\Gamma(\nu+\frac{1}{2})} \frac{L_{\nu+\frac{1}{2}}(bs)}{\sinh(bs)}$	$n=0,1,2,\ldots$ $Re\,\nu>-1$ $Re\,s>0$
	3	$\frac{\cos[2\pi(\nu-\frac{1}{2})]}{(bt-t^2)^\nu}$ $\quad 0<t<b$ $-\frac{\sin[2\pi(\nu-\frac{1}{2})]}{(t^2-bt)^\nu}$ $\quad t>b$	$\frac{\pi^{\frac{1}{2}} e^{-\frac{bs}{2}} s^{\nu-\frac{1}{2}}}{\Gamma(\nu)b^{\nu-\frac{1}{2}}} I_{\nu-\frac{1}{2}}\left(\frac{bs}{2}\right)$	$Re\,\nu<1$ $Re\,s>0$
	4	$\sum_{1<n<e^t} (t-\log n)^a$	$\frac{\Gamma(a+1)\zeta(s)}{s^{a+1}}$	$Re\,a>-1$ $Re\,s>0$
35.4	1	$\log b \quad 0<t<b$ $\log t \quad t>b$	$\frac{1}{s}[\log b-Ei(-bs)]$	$Re\,s>0$
	2	$\log t \quad 0<t<b$ $\log b \quad t>b$	$\frac{1}{s}[Ei(-bs)-\log(\gamma s)]$	$Re\,s>-\infty$
35.4.1	1	$\log\lvert b-t\rvert$	$\frac{1}{s}\{\log b-e^{-bs}\,\overline{Ei}(bs)\}$	$Re\,s>0$
	2	$\log\lvert t^2-b^2\rvert$	$\frac{1}{s}[2\log b-e^{bs}Ei(-bs)-e^{-bs}\overline{Ei}(bs)]$	$Re\,s>0$ $b>0$
	3	$\frac{1}{t}\log\lvert 1-b^2t^2\rvert$	$\overline{Ei}(\frac{s}{b})Ei(-\frac{s}{b})$	$b>0$ $Re\,s>0$

		$f(t)$		$g(s)$	
35.5	1	$\sin bt$ 0	$\frac{2n\pi}{b}<t<\frac{(2n+1)\pi}{b}$ $\frac{(2n+1)\pi}{b}<t<\frac{(2n+2)\pi}{b}$	$\frac{b}{s^2+b^2}\cdot\frac{1}{1-e^{-\frac{\pi}{b}s}}$	$n=0,1,2,\ldots$ $Re\,s>0$
	2	$\sin(at)$ 0	$2nb\pi<t<(2n+1)b\pi$ $(2n+1)b\pi<t<(2n+2)b\pi$	$\frac{a}{(s^2+a^2)(1+e^{-b\pi s})}$	$n=0,1,2,\ldots$ $Re\,s>\lvert Im\,a\rvert$
	3	$\lvert\sin(bt)\rvert$		$\frac{b}{s^2+b^2}\,\frac{1+e^{-\frac{\pi s}{b}}}{1-e^{-\frac{\pi s}{b}}}$ $=\frac{b}{s^2+b^2}\coth\frac{\pi s}{2b}$	$Re\,s>\lvert Im\,b\rvert$
	4	$\lvert\sin(bt)\rvert^{2\nu}$		$\frac{B(1+\frac{is}{2b},1-\frac{is}{2b})}{(2\nu+1)2^{2\nu}s\,B(\nu+1+\frac{is}{2b},\nu+1-\frac{is}{2b})}$	$Re\,\nu>-\frac{1}{2}$ $Re\,s>\lvert Im\,b\rvert$
	5	$\sin^2(at)$ 0	$2nb\pi<t<(2n+1)b\pi$ $(2n+1)b\pi<t<(2n+2)b\pi$	$\frac{2a^2}{s(s^2+4a^2)(1+e^{-b\pi s})}$	$n=0,1,2,\ldots$ $Re\,s>2\lvert Im\,a\rvert$
	6	$\cos(bt)$ $-\cos(bt)$	$2n\pi<bt<(2n+1)\pi$ $(2n+1)\pi<bt<(2n+2)\pi$	$\frac{s}{s^2+b^2}\coth\frac{\pi s}{2b}$	$n=0,1,2,\ldots$ $Re\,s>0$
	7	$\cos(at)$ 0	$2nb\pi<t<(2n+1)b\pi$ $(2n+1)b\pi<t<(2n+2)b\pi$	$\frac{s}{(s^2+a^2)(1+e^{-b\pi s})}$	$n=0,1,2,\ldots$ $Re\,s>\lvert Im\,a\rvert$
	8	$1-\cos(bt)$ 0	$2n<\frac{bt}{2m\pi}<2n+1$ $2n+1<\frac{bt}{2m\pi}<2n+2$	$\frac{b^2}{s(s^2+b^2)(1+e^{-\frac{2m\pi s}{b}})}$	$m=1,2,3,\ldots$ $n=0,1,2,\ldots$ $Re\,s>0$

		$f(t)$	$g(s)$	
35.5 (Contd.)	9	$\lvert\cos(bt)\rvert$	$\dfrac{s+b\ \mathrm{cosech}\ (\frac{\pi s}{2b})}{s^2+b^2}$ $= \dfrac{1}{s^2+b^2}\left(s+\dfrac{2be^{-\frac{\pi s}{2b}}}{1-e^{-\frac{\pi s}{b}}}\right)$	$\mathrm{Re}\ s > \lvert \mathrm{Im}\ b\rvert$
	10	$\lvert\cos(bt)\rvert - \cos(bt)$	$\dfrac{b\ \mathrm{cosech}\ \frac{\pi s}{2b}}{s^2+b^2}$	$\mathrm{Re}\ s > \lvert \mathrm{Im}\ b\rvert$
	11	$\cos^2(at)$ $\quad 2nb\pi < t < (2n+1)b\pi$ 0 $\quad (2n+1)b\pi < t < (2n+2)b\pi$	$\dfrac{s^2+2a^2}{s(s^2+4a^2)(1+e^{-b\pi s})}$	$n = 0,1,2,\ldots$ $\mathrm{Re}\ s > 2\lvert \mathrm{Im}\ a\rvert$
35.16	1	$\mathrm{Erf}(at)$ $\quad 0<t<\frac{b}{a}$ $\mathrm{Erf}(b)$ $\quad t>\frac{b}{a}$	$\frac{1}{s}e^{\frac{s^2}{4a^2}}[\mathrm{Erf}(\frac{s}{2a})-\mathrm{Erf}(\frac{s}{2a}+b)]$	$\mathrm{Re}\ s > 0$
36	1	0 $\quad 0<t<b$ 1 $\quad t>b$	$\frac{1}{s}e^{-bs}$	$\mathrm{Re}\ s > 0$
	2	0 $\quad 0<t<b$ t $\quad t>b$	$(\frac{b}{s}+\frac{1}{s^2})e^{-bs}$	$\mathrm{Re}\ s > 0$
	3	0 $\quad 0<t<b$ $\frac{1}{t}$ $\quad t>b$	$-\mathrm{Ei}(-bs)$	$\mathrm{Re}\ s > 0$
36.1	1	0 $\quad 0<t<b$ t^2 $\quad t>b$	$(\frac{2}{s^3}+\frac{2b}{s^2}+\frac{b^2}{s})e^{-bs}$	$\mathrm{Re}\ s > 0$

		$f(t)$	$g(s)$	
36.1 (Contd.)	2	0 $\quad 0<t<b$ t^n $\quad t>b$	$e^{-bs}\sum_{m=0}^{n}\frac{n!}{m!}\frac{b^m}{s^{n-m+1}}$	$n = 0,1,2,\ldots$ $\mathrm{Re}\ s > 0$
	3	0 $\quad 0<t<b$ $\frac{1}{t^2}$ $\quad t>b$	$\frac{e^{-bs}}{b}+s\mathrm{Ei}(-bs)$	$\mathrm{Re}\ s > 0$
	4	0 $\quad 0<t<b$ $\frac{1}{t+a}$ $\quad t>b$	$-e^{as}\mathrm{Ei}[-(a+b)s]$	$\lvert\arg(a+b)\rvert < \pi$ $\mathrm{Re}\ s > 0$
	5	0 $\quad 0<t<b$ $\frac{1}{(t+a)^n}$ $\quad t>b$	$e^{-bs}\sum_{m=1}^{n-1}\frac{(m-1)!}{(n-1)!}\frac{(-s)^{n-m-1}}{(a+b)^m}$ $-\frac{(-s)^{n-1}}{(n-1)!}e^{as}\mathrm{Ei}[-(a+b)s]$	$n = 2,3,4,\ldots$ $\lvert\arg(a+b)\rvert < \pi$ $\mathrm{Re}\ s > 0$
36.2	1	0 $\quad 0<t<b$ $\frac{1}{t^{\frac{1}{2}}}$ $\quad t>b$	$(\frac{\pi}{s})^{\frac{1}{2}}\mathrm{Erfc}[(bs)^{\frac{1}{2}}]$	$\mathrm{Re}\ s > 0$
	2	0 $\quad 0<t<b$ $\frac{1}{t^{\frac{3}{2}}}$ $\quad t>b$	$\frac{2}{b^{\frac{1}{2}}}e^{-bs}-2(\pi s)^{\frac{1}{2}}\mathrm{Erfc}[(bs)^{\frac{1}{2}}]$	$\mathrm{Re}\ s > 0$
	3	0 $\quad 0<t<b$ t^{ν} $\quad t>b$	$\frac{\Gamma(\nu+1,bs)}{s^{\nu+1}}$	$\mathrm{Re}\ s > 0$
	4	0 $\quad 0<t<b$ $(t-b)^{\nu}$ $\quad t>b$	$\frac{\Gamma(\nu+1)e^{-bs}}{s^{\nu+1}}$	$\mathrm{Re}\ \nu > -1$ $\mathrm{Re}\ s > 0$

		f(t)	g(s)	
36.2 (Contd.)	5	$0 \quad 0<t<b$ $\frac{(t-b)^{\frac{1}{2}}}{t} \quad t>b$	$\pi^{\frac{1}{2}}s^{\frac{1}{2}}e^{-bs}-\pi b^{\frac{1}{2}}\mathrm{Erfc}(b^{\frac{1}{2}}s^{\frac{1}{2}})$	$\mathrm{Re}\, s>0$
	6	$0 \quad 0<t<b$ $\frac{(t-b)^{\nu}}{t} \quad t>b$	$\Gamma(\nu+1)b^{\nu}\Gamma(-\nu,bs)$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\, s>0$
	7	$0 \quad 0<t<b$ $\frac{1}{t(t-b)^{\frac{1}{2}}} \quad t>b$	$\pi b^{-\frac{1}{2}}\mathrm{Erfc}(b^{\frac{1}{2}}s^{\frac{1}{2}})$	$\mathrm{Re}\, s>0$
	8	$0 \quad 0<t<b$ $\frac{(t-b)^{\nu-1}}{(t+b)^{\nu+\frac{1}{2}}} \quad t>b$	$2^{\nu-\frac{1}{2}}\Gamma(\nu)b^{-\frac{1}{2}}D_{-2\nu}(2b^{\frac{1}{2}}s^{\frac{1}{2}})$	$\mathrm{Re}\,\nu>0$ $\mathrm{Re}\, s>0$
	9	$0 \quad 0<t<b$ $\frac{(t-b)^{\nu-1}}{(t+b)^{\nu-\frac{1}{2}}} \quad t>b$	$2^{\nu-\frac{1}{2}}\Gamma(\nu)s^{-\frac{1}{2}}D_{1-2\nu}(2b^{\frac{1}{2}}s^{\frac{1}{2}})$	$\mathrm{Re}\,\nu>0$ $\mathrm{Re}\, s>0$
	10	$0 \quad 0<t<b$ $(t+a)^{\mu}(t-b)^{\nu} \quad t>b$	$\frac{\Gamma(\nu+1)(a+b)^{\frac{\mu+\nu}{2}}}{s^{\frac{\mu+\nu}{2}+1}}e^{\frac{(a-b)s}{2}}\cdot W_{\frac{\mu-\nu}{2},\frac{\mu+\nu+1}{2}}[(a+b)s]$	$\mathrm{Re}\,\nu>-1$ $\lvert\arg(a+b)\rvert<\pi$ $\mathrm{Re}\, s>0$
	11	$0 \quad 0<t<b$ $[(t+b)^{\frac{1}{2}}+(t-b)^{\frac{1}{2}}]^{\nu}-[(t+b)^{\frac{1}{2}}-(t-b)^{\frac{1}{2}}]^{\nu} \quad t>b$	$(2b)^{\frac{\nu}{2}}\frac{\nu}{s}K_{\frac{\nu}{2}}(bs)$	$\mathrm{Re}\, s>0$

		f(t)	g(s)	
36.2 (Contd.)	12	$0 \quad 0<t<b$ $\frac{1}{(t^2-b^2)^{\frac{1}{2}}} \quad t>b$	$K_0(bs)$	$\mathrm{Re}\, s>0$
	13	$0 \quad 0<t<b$ $\frac{t}{(t^2-b^2)^{\frac{1}{2}}} \quad t>b$	$bK_1(bs)$	$\mathrm{Re}\, s>0$
	14	$0 \quad 0<t<b$ $(t^2-b^2)^{\nu} \quad t>b$	$\frac{1}{\pi^{\frac{1}{2}}}\Gamma(\nu+1)\left(\frac{2b}{s}\right)^{\nu+\frac{1}{2}}K_{\nu+\frac{1}{2}}(bs)$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\, s>0$
	15	$0 \quad 0<t<1$ $\frac{[t+(t^2-1)^{\frac{1}{2}}]^{\nu}+[t-(t^2-1)^{\frac{1}{2}}]^{\nu}}{(t^2-1)^{\frac{1}{2}}} \quad t>1$	$2K_{\nu}(s)$	$\mathrm{Re}\, s>0$
	16	$0 \quad 0<t<1$ $\frac{[t+(t^2-1)^{\frac{1}{2}}]^{\nu}+[t-(t^2-1)^{\frac{1}{2}}]^{\nu}}{t^{\frac{1}{2}}(t^2-1)^{\frac{1}{2}}} \quad t>1$	$\left(\frac{2s}{\pi}\right)^{\frac{1}{2}}K_{\frac{\nu}{2}+\frac{1}{4}}\left(\frac{s}{2}\right)K_{\frac{\nu}{2}-\frac{1}{4}}\left(\frac{s}{2}\right)$	$\mathrm{Re}\, s>0$
36.3	1	$0 \quad 0<t<a\log b$ $(1-be^{-\frac{t}{a}})^{n} \quad t>a\log b$	$\frac{a\,n!\,b^{-as}\Gamma(as)}{\Gamma(as+n+1)}$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	2	$0 \quad 0<t<\log b$ $(1-be^{-t})^{a} \quad t>\log b$	$\frac{B(s,a+1)}{b^{s}}$	$\mathrm{Re}\, a>-1$ $b>1$ $\mathrm{Re}\, s>0$

		f(t)		g(s)	
36.3 (Contd.)	3	0 $\frac{[e^{-b}(1-e^{-2t})^{\frac{1}{2}}-e^{-t}(1-e^{-2b})^{\frac{1}{2}}]^{\nu}}{(1-e^{-2t})^{\frac{1}{2}}}$	$0<t<b$ $t>b$	$\frac{\pi^{\frac{1}{2}}\Gamma(s)\Gamma(\nu+1)e^{-\frac{b(s+\nu)}{2}}}{2^{\frac{s+\nu}{2}}\Gamma(\frac{s+\nu+1}{2})} \cdot P^{-\frac{s+\nu}{2}}_{\frac{\nu-s}{2}}[(1-e^{-2b})^{\frac{1}{2}}]$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\,s>0$
36.3.1	1	0 $e^{-a(t-b)}$	$0<t<b$ $t>b$	$\frac{e^{-bs}}{s+a}$	$\mathrm{Re}\,s>-\mathrm{Re}\,a$
	2	0 $1-e^{-a(t-b)}$	$0<t<b$ $t>b$	$\frac{a e^{-bs}}{s(s+a)}$	$\mathrm{Re}\,s>\mathrm{Max}\ 0,-\mathrm{Re}\,a$
	3	0 $e^{-\frac{t^2}{4a}}$	$0<t<b$ $t>b$	$\pi^{\frac{1}{2}}a^{\frac{1}{2}}e^{as^2}\,\mathrm{Erfc}\left(a^{\frac{1}{2}}s+\frac{b}{2a^{\frac{1}{2}}}\right)$	$\mathrm{Re}\,a>0$ $\mathrm{Re}\,s>-\infty$
36.3.2	1	0 $e^{bt}\int_a^t e^{-bu}u^{\nu}du$	$0<t<b$ $t>b$	$\frac{Q(as,\nu+1)}{(s-b)s^{\nu+1}}$	$\mathrm{Re}\,s>b$
36.4	1	0 $\log t$	$0<t<b$ $t>b$	$\frac{1}{s}[e^{-bs}\log b-\mathrm{Ei}(-bs)]$	$\mathrm{Re}\,s>0$
36.4.1	1	0 $\frac{\log\frac{t}{b}}{t+b}$	$0<t<b$ $t>b$	$\frac{1}{2}e^{bs}[\mathrm{Ei}(-bs)]^2$	$\mathrm{Re}\,s>0$

		f(t)		g(s)	
36.4.1 (Contd.)	2	0 $\frac{\log t}{t+b}$	$0<t<b$ $t>b$	$e^{bs}\{\frac{1}{2}[\mathrm{Ei}(-bs)]^2-\log b\,\mathrm{Ei}(-2bs)\}$	$\mathrm{Re}\,s>0$
	3	0 $\frac{1}{t}\log(2t-1)$	$0<t<1$ $t>1$	$\frac{1}{2}[\mathrm{Ei}(-\frac{s}{2})]^2$	$\mathrm{Re}\,s>0$
	4	0 $\frac{1}{t}\log\frac{(t-a)(t-b)}{ab}$	$0<t<a+b$ $t>a+b$	$\mathrm{Ei}(-as)\mathrm{Ei}(-bs)$	$a>0$ $b>0$ $\mathrm{Re}\,s>0$
36.4.2	1	0 $\log\frac{(t+b)^{\frac{1}{2}}+(t-b)^{\frac{1}{2}}}{(2b)^{\frac{1}{2}}}$	$0<t<b$ $t>b$	$\frac{1}{2s}K_0(bs)$	$\mathrm{Re}\,s>0$
36.5	1	0 $\sin^{2n}t$	$0<t<\frac{\pi}{2}$ $t>\frac{\pi}{2}$	$\frac{(2n)!\,e^{-\frac{\pi}{2}s}\left\{1+\frac{s^2}{2!}+\dots+\frac{s^2(s^2+2^2)\dots[s^2+(2n-2)^2]}{(2n)!}\right\}}{s[s^2+2^2][s^2+4^2]\dots[s^2+(2n)^2]}$	$n=1,2,3,\dots$ $\mathrm{Re}\,s>0$
	2	0 $\sin^{2n+1}t$	$0<t<\frac{\pi}{2}$ $t>\frac{\pi}{2}$	$\frac{(2n+1)!\,s\,e^{-\frac{\pi}{2}s}\left\{1+\frac{s^2+1^2}{3!}+\dots+\frac{(s^2+1^2)(s^2+3^2)\dots[s^2+(2n-1)^2]}{(2n+1)!}\right\}}{[s^2+1^2][s^2+3^2]\dots[s^2+(2n+1)^2]}$	$n=0,1,2,\dots$ $\mathrm{Re}\,s>0$
	3	0 $t\sin t$	$0<t<\frac{\pi}{2}$ $t>\frac{\pi}{2}$	$\frac{e^{-\frac{\pi}{2}s}}{(1+s^2)^2}[\frac{\pi}{2}s(1+s^2)+s^2-1]$	$\mathrm{Re}\,s>0$
	4	0 $\cos^{2n}t$	$0<t<\frac{\pi}{2}$ $t>\frac{\pi}{2}$	$\frac{(2n)!\,e^{-\frac{\pi}{2}s}}{s(s^2+2^2)(s^2+4^2)\dots(s^2+4n^2)}$	$n=1,2,3,\dots$ $\mathrm{Re}\,s>0$

		$f(t)$	$g(s)$	
36.5 (Contd.)	5	$\begin{cases} 0 & 0<t<\frac{\pi}{2} \\ \cos^{2n+1} t & t>\frac{\pi}{2} \end{cases}$	$\dfrac{-(2n+1)!\,e^{-\frac{\pi}{2}s}}{[s^2+1^2][s^2+3^2]\cdots[s^2+(2n+1)^2]}$	$n=0,1,2,\ldots$ $\operatorname{Re} s>0$
	6	$\begin{cases} 0 & 0<t<\frac{\pi}{2} \\ t\cos t & t>\frac{\pi}{2} \end{cases}$	$-e^{-\frac{\pi}{2}s}\,\dfrac{\frac{\pi}{2}(1+s^2)+2s}{(1+s^2)^2}$	$\operatorname{Re} s>0$
36.5.1	1	$\begin{cases} 0 & 0<t<b \\ \cos[a(t-b)]+c\sin[a(t-b)] & t>b \end{cases}$	$\dfrac{s+ac}{s^2+a^2}e^{-bs}$	$\operatorname{Re} s>\lvert\operatorname{Im} a\rvert$
36.5.2	1	$\begin{cases} 0 & 0<t<b \\ \dfrac{\sin[a(t^2-b^2)^{\frac{1}{2}}]}{(t+b)^{\frac{1}{2}}} & t>b \end{cases}$	$\dfrac{a\pi^{\frac{1}{2}}e^{-b(s^2+a^2)^{\frac{1}{2}}}}{2^{\frac{1}{2}}(s^2+a^2)^{\frac{1}{2}}[s+(s^2+a^2)^{\frac{1}{2}}]^{\frac{1}{2}}}$	$\operatorname{Re} s>\lvert\operatorname{Im} a\rvert$
	2	$\begin{cases} 0 & 0<t<b \\ \sin[a(t^2-b^2)^{\frac{1}{2}}] & t>b \end{cases}$	$ab\,\dfrac{K_1[b(s^2+a^2)^{\frac{1}{2}}]}{(s^2+a^2)^{\frac{1}{2}}}$	$\operatorname{Re} s>\lvert\operatorname{Im} a\rvert$
	3	$\begin{cases} 0 & 0<t<b \\ \dfrac{\cos[a(t^2-b^2)^{\frac{1}{2}}]}{(t+b)^{\frac{1}{2}}} & t>b \end{cases}$	$\left(\frac{\pi}{2}\right)^{\frac{1}{2}}\dfrac{[s+(s^2+a^2)^{\frac{1}{2}}]^{\frac{1}{2}}}{(s^2+a^2)^{\frac{1}{2}}}e^{-b(s^2+a^2)^{\frac{1}{2}}}$	$\operatorname{Re} s>\lvert\operatorname{Im} a\rvert$
36.6	1	$\begin{cases} 0 & 0<t<b \\ \cos^{-1}\frac{b}{t} & t>b \end{cases}$	$\dfrac{b}{s}\displaystyle\int_s^\infty K_0(bu)\,du$	$\operatorname{Re} s>0$
36.7	1	$\begin{cases} 0 & 0<t<1 \\ \dfrac{\sinh(at)}{t} & t>1 \end{cases}$	$-\frac{1}{2}Ei(a-s)+\frac{1}{2}Ei(-a-s)$	$\operatorname{Re} s>\lvert\operatorname{Re} a\rvert$

		$f(t)$	$g(s)$	
36.7 (Contd.)	2	$\begin{cases} 0 & 0<t<1 \\ \dfrac{\cosh(at)}{t} & t>1 \end{cases}$	$-\frac{1}{2}Ei(a-s)-\frac{1}{2}Ei(-a-s)$	$\operatorname{Re} s>\lvert\operatorname{Re} a\rvert$
	3	$\begin{cases} 0 & 0<t<b \\ (\cosh t-\cosh b)^{\nu-1} & t>b \end{cases}$	$-i\left(\frac{2}{\pi}\right)^{\frac{1}{2}}e^{i\nu\pi}\Gamma(\nu)\sinh^{\nu-\frac{1}{2}}b\;Q^{\frac{1}{2}-\nu}_{s-\frac{1}{2}}(\cosh b)$	$\operatorname{Re}\nu>0$ $\operatorname{Re} s>\operatorname{Re}(\nu-1)$
36.7.1	1	$\begin{cases} 0 & 0<t<b \\ \cosh[a(t-b)]+c\sinh[a(t-b)] & t>b \end{cases}$	$\dfrac{s+ac}{s^2-a^2}e^{-bs}$	$\operatorname{Re} s>\lvert\operatorname{Re} a\rvert$
36.7.2	1	$\begin{cases} 0 & 0<t<b \\ \dfrac{\sinh[a(t^2-b^2)^{\frac{1}{2}}]}{(t+b)^{\frac{1}{2}}} & t>b \end{cases}$	$\left(\frac{\pi}{2}\right)^{\frac{1}{2}}e^{-b(s^2-a^2)^{\frac{1}{2}}}\left[\dfrac{s-(s^2-a^2)^{\frac{1}{2}}}{s^2-a^2}\right]^{\frac{1}{2}}$	$\operatorname{Re} s>\lvert\operatorname{Re} a\rvert$
	2	$\begin{cases} 0 & 0<t<b \\ \dfrac{\cosh[a(t^2-b^2)^{\frac{1}{2}}]}{(t+b)^{\frac{1}{2}}} & t>b \end{cases}$	$\left(\frac{\pi}{2}\right)^{\frac{1}{2}}e^{-b(s^2-a^2)^{\frac{1}{2}}}\left[\dfrac{(s^2-a^2)^{\frac{1}{2}}+s}{s^2-a^2}\right]^{\frac{1}{2}}$	$\operatorname{Re} s>\lvert\operatorname{Re} a\rvert$
36.7.3	1	$\begin{cases} 0 & 0<t<\cosh^{-1}a \\ \dfrac{e^{-\frac{t}{2}}}{(\cosh t-a)^{\mu}} & t>\cosh^{-1}a \end{cases}$	$\left(\frac{2}{\pi}\right)^{\frac{1}{2}}\dfrac{\Gamma(-\mu)}{[-(a^2-1)^{\frac{1}{2}}]^{\mu-\frac{1}{2}}}\,Q_s^{\mu-\frac{1}{2}}(a)$	$\operatorname{Re}\mu<1$ $\operatorname{Re} s>-\operatorname{Re}(\mu+$
36.8	1	$\begin{cases} 0 & 0<t<b \\ \cosh^{-1}\frac{t}{b} & t>b \end{cases}$	$\frac{1}{s}K_0(bs)$	$\operatorname{Re} s>0$
36.8.7	1	$\begin{cases} 0 & 0<t<b \\ \sinh[\nu\cosh^{-1}\frac{t}{b}] & t>b \end{cases}$	$\frac{\nu}{s}K_\nu(bs)$	$\operatorname{Re} s>0$

		$f(t)$		$g(s)$	
36.8.7.2	1	0	$0<t<b$	$K_\nu(bs)$	$\mathrm{Re}\, s>0$
		$\dfrac{\cosh(\nu\cosh^{-1}\frac{t}{b})}{(t^2-b^2)^{\frac{1}{2}}}$	$t>b$		
	2	0	$0<t<b$	$\left(\frac{s}{2\pi}\right)^{\frac{1}{2}} K_{\frac{\nu}{2}+\frac{1}{4}}\left(\frac{bs}{2}\right)K_{\frac{\nu}{2}-\frac{1}{4}}\left(\frac{bs}{2}\right)$	$\mathrm{Re}\, s>0$
		$\dfrac{\cosh(\nu\cosh^{-1}\frac{t}{b})}{t^{\frac{1}{2}}(t^2-b^2)^{\frac{1}{2}}}$	$t>b$		
36.9.2	1	0	$0<t<1$	$\frac{n}{s}K_n(s)$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
		$(t^2-1)^{\frac{1}{2}}U_n(t)$	$t>1$		
	2	0	$0<t<1$	$K_n(s)$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
		$\dfrac{T_n(t)}{(t^2-1)^{\frac{1}{2}}}$	$t>1$		
36.10.2	1	0	$0<t<b$	$\left(\frac{2}{\pi}\right)^{\frac{1}{2}} \dfrac{K_{\frac{1}{2}}[b(s^2+a^2)^{\frac{1}{2}}]}{(s^2+a^2)^{\frac{1}{4}}}$	$\mathrm{Re}\, s>0$
		$\dfrac{J_0[a(t^2-b^2)^{\frac{1}{2}}]}{t^{\frac{1}{2}}}$	$t>b$		
	2	0	$0<t<b$	$\dfrac{e^{-b(s^2+a^2)^{\frac{1}{2}}}}{(s^2+a^2)^{\frac{1}{2}}}$	$\mathrm{Re}\, s>\lvert\mathrm{Im}\, a\rvert$
		$J_0[a(t^2-b^2)^{\frac{1}{2}}]$	$t>b$		
	3	0	$0<t<b$	$\dfrac{s[b(s^2+a^2)^{\frac{1}{2}}+1]}{(s^2+a^2)^{\frac{3}{2}}}e^{-b(s^2+a^2)^{\frac{1}{2}}}$	$\mathrm{Re}\, s>\lvert\mathrm{Im}\, a\rvert$
		$t\,J_0[a(t^2-b^2)^{\frac{1}{2}}]$	$t>b$		
	4	0	$0<t<b$	$\dfrac{a[b(s^2+a^2)^{\frac{1}{2}}+1]}{(s^2+a^2)^{\frac{3}{2}}}e^{-b(s^2+a^2)^{\frac{1}{2}}}$	$\mathrm{Re}\, s>\lvert\mathrm{Im}\, a\rvert$
		$(t^2-b^2)^{\frac{1}{2}}J_1[a(t^2-b^2)^{\frac{1}{2}}]$	$t>b$		

		$f(t)$		$g(s)$	
36.10.2 (Contd.)	5	0	$0<t<b$	$\dfrac{e^{-bs}-e^{-b(s^2+a^2)^{\frac{1}{2}}}}{ab}$	$\mathrm{Re}\, s>\lvert\mathrm{Im}\, a\rvert$
		$\dfrac{J_1[a(t^2-b^2)^{\frac{1}{2}}]}{(t^2-b^2)^{\frac{1}{2}}}$	$t>b$		
	6	0	$0<t<b$	$\frac{1}{a}\left[e^{-bs}-\dfrac{s}{(s^2+a^2)^{\frac{1}{2}}}e^{-b(s^2+a^2)^{\frac{1}{2}}}\right]$	$\mathrm{Re}\, s>\lvert\mathrm{Im}\, a\rvert$
		$\dfrac{t\,J_1[a(t^2-b^2)^{\frac{1}{2}}]}{(t^2-b^2)^{\frac{1}{2}}}$	$t>b$		
	7	0	$0<t<b$	$\frac{1}{a}\left[1-\dfrac{s}{(s^2+a^2)^{\frac{1}{2}}}\right]e^{-b(s^2+a^2)^{\frac{1}{2}}}$	$\mathrm{Re}\, s>\lvert\mathrm{Im}\, a\rvert$
		$\left(\dfrac{t-b}{t+b}\right)^{\frac{1}{2}}J_1[a(t^2-b^2)^{\frac{1}{2}}]$	$t>b$		
	8	0	$0<t<b$	$I_{\frac{\nu}{2}}\{\frac{b}{2}[(s^2+a^2)^{\frac{1}{2}}-s]\}K_{\frac{\nu}{2}}\{\frac{b}{2}[(s^2+a^2)^{\frac{1}{2}}+s]\}$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\, s>\lvert\mathrm{Im}\, a\rvert$
		$\dfrac{J_\nu[a(t^2-b^2)^{\frac{1}{2}}]}{(t^2-b^2)^{\frac{1}{2}}}$	$t>b$		
	9	0	$0<t<b$	$\dfrac{a^\nu e^{-b(s^2+a^2)^{\frac{1}{2}}}}{(s^2+a^2)^{\frac{1}{2}}[s+(s^2+a^2)^{\frac{1}{2}}]^\nu}$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\, s>\lvert\mathrm{Im}\, a\rvert$
		$\left(\dfrac{t-b}{t+b}\right)^{\frac{\nu}{2}}J_\nu[a(t^2-b^2)^{\frac{1}{2}}]$	$t>b$		
	10	0	$0<t<b$	$\dfrac{2^{\frac{1}{2}}a^\nu b^{\nu+\frac{1}{2}}K_{\nu+\frac{1}{2}}[b(s^2+a^2)^{\frac{1}{2}}]}{\pi^{\frac{1}{2}}(s^2+a^2)^{\frac{\nu}{2}+\frac{1}{4}}}$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\, s>\lvert\mathrm{Im}\, a\rvert$
		$(t^2-b^2)^{\frac{\nu}{2}}J_\nu[a(t^2-b^2)^{\frac{1}{2}}]$	$t>b$		
	11	0	$0<t<b$	$\displaystyle\sum_{n=0}^{\infty}\frac{(-1)^n(ab)^{2\nu+2n}(2b)^{2\mu+1}\Gamma(\mu+\nu+n+1)}{\pi^{\frac{1}{2}}n!\Gamma(2\nu+n+1)(2s)^{\mu+\nu+n+\frac{1}{2}}}\cdot$	$\mathrm{Re}(\mu+\nu)>-1$ $\mathrm{Re}\, s>\lvert\mathrm{Im}\, a\rvert$
		$(t^2-b^2)^\mu J_{2\nu}[a(t^2-b^2)^{\frac{1}{2}}]$	$t>b$	$K_{\mu+\nu+n+\frac{1}{2}}(bs)$	

		$f(t)$		$g(s)$	
36.10.2 (Contd.)	12	0 $\log a\, J_0[a(t^2-b^2)^{\frac{1}{2}}] - \frac{\pi}{2}Y_0[a(t^2-b^2)^{\frac{1}{2}}]$	$0<t<b$ $t>b$	$\dfrac{e^{-b(s^2+a^2)^{\frac{1}{2}}}\log[s+(s^2+a^2)^{\frac{1}{2}}]}{(s^2+a^2)^{\frac{1}{2}}}$	$\operatorname{Re} s > \lvert \operatorname{Im} a \rvert$
36.10.2.1	1	0 $\dfrac{J_0[a(t^2-b^2)^{\frac{1}{2}}]}{t-c}$	$0<t<b$ $t>b$	$-e^{-b(s^2+a^2)^{\frac{1}{2}}}\displaystyle\int_0^\infty e^{-u}\lvert u^2-2[cs-b(s^2+a^2)^{\frac{1}{2}}]u + c^2[(s^2+a^2)^{\frac{1}{2}}-s]^2\rvert^{-\frac{1}{2}}du$	$\lvert\arg(b-c)\rvert<\pi$ $\operatorname{Re} s > \lvert \operatorname{Im} a \rvert$
	2	0 $\displaystyle\int_b^t J_0[a(t-u)]J_0[a(u^2-b^2)^{\frac{1}{2}}]du$	$0<t<b$ $t>b$	$\dfrac{e^{-b(s^2+a^2)^{\frac{1}{2}}}}{s^2+a^2}$	$\operatorname{Re} s > \lvert \operatorname{Im} a \rvert$
36.10.5.2	1	0 $Y_0[a(t^2-b^2)^{\frac{1}{2}}]*[ab\, J_0(at)+\sin(at)] -(t^2-b^2)^{\frac{1}{2}}Y_0[a(t^2-b^2)^{\frac{1}{2}}]$	$0<t<b$ $t>b$	$\dfrac{2}{\pi a}\,\dfrac{se^{-b(s^2+a^2)^{\frac{1}{2}}}}{s^2+a^2}$	$\operatorname{Re} s > \lvert \operatorname{Im} a \rvert$
36.12.2	1	0 $I_0[a(t^2-b^2)^{\frac{1}{2}}]$	$0<t<b$ $t>b$	$\dfrac{e^{-b(s^2-a^2)^{\frac{1}{2}}}}{(s^2-a^2)^{\frac{1}{2}}}$	$\operatorname{Re} s > \lvert \operatorname{Re} a \rvert$
	2	0 $t\, I_0[a(t^2-b^2)^{\frac{1}{2}}]$	$0<t<b$ $t>b$	$se^{-b(s^2-a^2)^{\frac{1}{2}}}\left[\dfrac{b}{s^2-a^2}+\dfrac{1}{(s^2-a^2)^{\frac{3}{2}}}\right]$	$\operatorname{Re} s > \lvert \operatorname{Re} a \rvert$
	3	0 $(t^2-b^2)^{\frac{1}{2}}I_1[a(t^2-b^2)^{\frac{1}{2}}]$	$0<t<b$ $t>b$	$ae^{-b(s^2-a^2)^{\frac{1}{2}}}\left[\dfrac{b}{s^2-a^2}+\dfrac{1}{(s^2-a^2)^{\frac{3}{2}}}\right]$	$\operatorname{Re} s > \lvert \operatorname{Re} a \rvert$

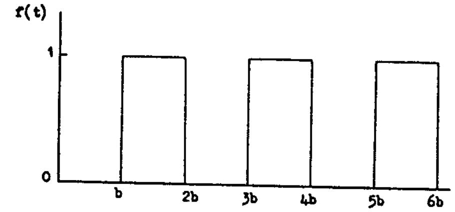
		$f(t)$		$g(s)$	
36.12.2 (Contd.)	4	0 $\dfrac{I_1[a(t^2-b^2)^{\frac{1}{2}}]}{(t^2-b^2)^{\frac{1}{2}}}$	$0<t<b$ $t>b$	$\dfrac{e^{-b(s^2-a^2)^{\frac{1}{2}}}-e^{-bs}}{ab}$	$\operatorname{Re} s > \lvert \operatorname{Re} a \rvert$
	5	0 $\dfrac{t\, I_1[a(t^2-b^2)^{\frac{1}{2}}]}{(t\ -b^2)^{\frac{1}{2}}}$	$0<t<b$ $t>b$	$\dfrac{se^{-b(s^2-a^2)^{\frac{1}{2}}}}{a(s^2-a^2)^{\frac{1}{2}}}-\dfrac{e^{-bs}}{a}$	$\operatorname{Re} s > \lvert \operatorname{Re} a \rvert$
	6	0 $\left(\dfrac{t-b}{t+b}\right)^{\frac{1}{2}}I_1[a(t^2-b^2)^{\frac{1}{2}}]$	$0<t<b$ $t>b$	$\dfrac{1}{a}\left[\dfrac{s}{(s^2-a^2)^{\frac{1}{2}}}-1\right]e^{-b(s^2-a^2)^{\frac{1}{2}}}$	$\operatorname{Re} s > \lvert \operatorname{Re} a \rvert$
	7	0 $(t^2-b^2)^{\frac{\nu}{2}}I_\nu[a(t^2-b^2)^{\frac{1}{2}}]$	$0<t<b$ $t>b$	$\left(\dfrac{2}{\pi}\right)^{\frac{1}{2}}\dfrac{a^\nu b^{\nu+\frac{1}{2}}}{(s^2-a^2)^{\frac{\nu}{2}+\frac{1}{4}}}K_{\nu+\frac{1}{2}}[b(s^2-a^2)^{\frac{1}{2}}]$	$\operatorname{Re}\nu>-1$ $\operatorname{Re} s > \lvert \operatorname{Re} a \rvert$
	8	0 $\left(\dfrac{t-b}{t+b}\right)^{\frac{\nu}{2}}I_\nu[a(t^2-b^2)^{\frac{1}{2}}]$	$0<t<b$ $t>b$	$\dfrac{a^\nu e^{-b(s^2-a^2)^{\frac{1}{2}}}}{(s^2-a^2)^{\frac{1}{2}}[s+(s^2-a^2)^{\frac{1}{2}}]^\nu}$	$\operatorname{Re}\nu>-1$ $\operatorname{Re} s > \lvert \operatorname{Re} a \rvert$
36.12.2.1	1	0 $\displaystyle\int_b^t I_0[a(t-u)]I_0[a(u^2-b^2)^{\frac{1}{2}}]du$	$0<t<b$ $t>b$	$\dfrac{e^{-b(s^2-a^2)^{\frac{1}{2}}}}{s^2-a^2}$	$\operatorname{Re} s > \lvert \operatorname{Re} a \rvert$
36.12.3.2	1	0 $e^{-ct}I_0[a(t^2-b^2)^{\frac{1}{2}}]$	$0<t<b$ $t>b$	$\dfrac{e^{-b(s+a+c)^{\frac{1}{2}}(s-a+c)^{\frac{1}{2}}}}{(s+a+c)^{\frac{1}{2}}(s-a+c)^{\frac{1}{2}}}$	$\operatorname{Re} s > \operatorname{Max} -\operatorname{Re}(a+c)$ $\operatorname{Re}(a-c)$

		$f(t)$		$g(s)$	
36.12.3.2 (Contd.)	2	0	$0<t<b$		
		$\left(\frac{t-b}{t+b}\right)^{\frac{\nu}{2}} e^{-(a+b)t} I_\nu[a(t^2-b^2)^{\frac{1}{2}}]$	$t>b$	$\frac{a^\nu e^{-b(s+2a+b)^{\frac{1}{2}}(s+b)^{\frac{1}{2}}}}{(s+2a+b)^{\frac{1}{2}}(s+b)^{\frac{1}{2}}} \cdot \frac{1}{[s+(a+b)+(s+2a+b)^{\frac{1}{2}}(s+b)^{\frac{1}{2}}]^\nu}$	Re $\nu > -1$ Re $s >$ |Re a| $-$ Re$(a+b)$
	3	0	$0<t<b$		
		$e^{-at} I_0[c(t^2-b^2)^{\frac{1}{2}}] + (a-c)\int_b^t e^{-au} I_0[c(u^2-b^2)^{\frac{1}{2}}]du$	$t>b$	$\frac{1}{s}\left(\frac{s+a-c}{s+a+c}\right)^{\frac{1}{2}} e^{-b[(s+a+c)(s+a-c)]^{\frac{1}{2}}}$	Re $s >$ Max $-$Re$(a+c)$, $-$Re$(a-c)$, 0
	4	0	$0<t<b$		
		$\left(\frac{t-b}{t+b}\right)^{\frac{\nu}{2}} K_\nu[a(t^2-b^2)]$	$t>b$	$\frac{\pi \operatorname{cosec}(\nu\pi)}{2a^\nu} \frac{e^{-b(s^2-a^2)^{\frac{1}{2}}}}{(s^2-a^2)^{\frac{1}{2}}} \cdot \left[\left\{s+(s^2-a^2)^{\frac{1}{2}}\right\}^\nu - \left\{s-(s^2-a^2)^{\frac{1}{2}}\right\}^\nu\right]$	|Re ν| < 1 Re $s >$ |Re a|
36.13.12.2	1	0	$0<t<b$		
		$K_0[a(t^2-b^2)^{\frac{1}{2}}] + \log a\, I_0[a(t^2-b^2)^{\frac{1}{2}}]$	$t>b$	$\frac{e^{-b(s^2-a^2)^{\frac{1}{2}}} \log[s+(s^2-a^2)^{\frac{1}{2}}]}{(s^2-a^2)^{\frac{1}{2}}}$	Re $s >$ |Re a|
36.16	1	0	$0<t<b$		
		$\mathrm{Erf}(\frac{t}{2}) - \mathrm{Erf}(\frac{b}{2})$	$t>b$	$\frac{1}{s} e^{s^2} \mathrm{Erfc}(s+\frac{b}{2})$	Re $s > 0$
36.19	1	0	$0<t<b$		
		$\mathrm{Ei}(-ba) - \mathrm{Ei}(-at)$	$t>b$	$\frac{1}{s}\mathrm{Ei}[-b(s+a)]$	$a \neq 0$ Re $s > -$ Re a
36.21	1	0	$0<t<b$		
		$\Gamma(\nu,at)$	$t>b$	$\frac{e^{-bs}}{s}\Gamma(\nu,ab) - \frac{a^\nu}{s(s+a)^\nu}\Gamma[\nu,b(s+a)]$	Re $s > -$ Re a

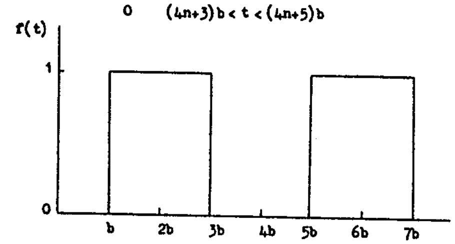
		$f(t)$		$g(s)$	
36.23.2	1	0	$0<t<b$		
		$(t^2-b^2)^{\frac{\mu}{2}} P_\nu^{-\mu}(\frac{t}{b})$	$t>b$	$\left(\frac{2b}{\pi}\right)^{\frac{1}{2}} \frac{K_{\nu+\frac{1}{2}}(bs)}{s^{\mu+\frac{1}{2}}}$	Re $s > 0$
	2	0	$0<t<b$		
		$\left(\frac{t+b}{t-b}\right)^{\frac{\mu}{2}} P_\nu^{\mu}(\frac{t}{b})$	$t>b$	$\frac{1}{s} W_{\mu,\nu+\frac{1}{2}}(2bs)$	Re $\mu > 1$ $\nu \neq 0, \pm 1, \pm 2,$ Re $s > 0$
36.24.2	1	0	$0<t<b$		
		$\mathrm{ber}[a(t^2-b^2)^{\frac{1}{2}}] + i\,\mathrm{bei}[a(t^2-b^2)^{\frac{1}{2}}]$	$t>b$	$\frac{e^{-b(s^2-ia^2)^{\frac{1}{2}}}}{(s^2-ia^2)^{\frac{1}{2}}}$	Re$(s \pm ai^{\frac{1}{2}}) > 0$
	2	0	$0<t<b$		
		$t\{\mathrm{ber}[a(t^2-b^2)^{\frac{1}{2}}] + i\,\mathrm{bei}[a(t^2-b^2)^{\frac{1}{2}}]\}$	$t>b$	$\frac{s[b(s^2-ia^2)^{\frac{1}{2}}+1]}{(s^2-ia^2)^{\frac{3}{2}}} e^{-b(s^2-ia^2)^{\frac{1}{2}}}$	Re$(s \pm ai^{\frac{1}{2}}) > 0$
	3	0	$0<t<b$		
		$(t^2-b^2)^{\frac{1}{2}}\{\mathrm{ber}_1[a(t^2-b^2)^{\frac{1}{2}}] + i\,\mathrm{bei}_1[a(t-b^2)^{\frac{1}{2}}]\}$	$t>b$	$\frac{a[b(s^2-ia^2)^{\frac{1}{2}}+1]}{(s^2-ia^2)^{\frac{3}{2}}} e^{-b(s^2-ia^2)^{\frac{1}{2}}+\frac{3\pi}{4}i}$	Re$(s \pm ai^{\frac{1}{2}}) > 0$
	4	0	$0<t<b$		
		$\frac{\mathrm{ber}_1[a(t^2-b^2)^{\frac{1}{2}}] + i\,\mathrm{bei}_1[a(t^2-b^2)^{\frac{1}{2}}]}{(t^2-b^2)^{\frac{1}{2}}}$	$t>b$	$\frac{\left\{e^{-bs} - e^{-b(s^2-ia^2)^{\frac{1}{2}}}\right\} e^{-\frac{3\pi}{4}i}}{ab}$	Re$(s \pm ai^{\frac{1}{2}}) > 0$
	5	0	$0<t<b$		
		$\frac{t\{\mathrm{ber}_1[a(t^2-b^2)^{\frac{1}{2}}] + i\,\mathrm{bei}_1[a(t^2-b^2)^{\frac{1}{2}}]\}}{(t^2-b^2)^{\frac{1}{2}}}$	$t>b$	$\frac{e^{-\frac{3\pi}{4}i}}{a}\left[e^{-bs} - \frac{s}{(s^2-ia^2)^{\frac{1}{2}}} e^{-b(s^2-ia^2)^{\frac{1}{2}}}\right]$	Re$(s \pm ai^{\frac{1}{2}}) > 0$

		f(t)		g(s)	
36.24.2 (Contd.)	6	0	$0<t<b$	$\dfrac{a^{\nu}e^{\frac{3}{4}\nu\pi i-b(s^2-ia^2)^{\frac{1}{2}}}}{(s^2-ia^2)^{\frac{1}{2}}[s+(s^2-ia^2)^{\frac{1}{2}}]^{\nu}}$	$\mathrm{Re}\,\nu>-1$, $\mathrm{Re}(s\pm ai^{\frac{1}{2}})>0$
		$\left(\frac{t-b}{t+b}\right)^{\frac{\nu}{2}}\left\{\mathrm{ber}_{\nu}[a(t^2-b^2)^{\frac{1}{2}}] + i\,\mathrm{bei}_{\nu}[a(t^2-b^2)^{\frac{1}{2}}]\right\}$	$t>b$		
	7	0	$0<t<b$	$\dfrac{e^{-b(s^2-ia^2)^{\frac{1}{2}}}}{ia^2-s^2}\left\{1+\left[bs-\dfrac{s}{(s^2-ia^2)^{\frac{1}{2}}}\right]\cdot \log\dfrac{[s+(s^2-ia^2)^{\frac{1}{2}}]}{i^{\frac{1}{2}}a}\right\}$	$\mathrm{Re}(s+ai^{\frac{1}{2}})>0$
		$t\{\mathrm{ker}[a(t^2-b^2)^{\frac{1}{2}}]+i\,\mathrm{kei}[a(t^2-b^2)^{\frac{1}{2}}]\}$	$t>b$		
	8	0	$0<t<b$	$\dfrac{e^{-b(s^2-ia^2)^{\frac{1}{2}}}}{(s^2-ia^2)^{\frac{1}{2}}}\log\dfrac{[s+(s^2-ia^2)^{\frac{1}{2}}]}{i^{\frac{1}{2}}a}$	$\mathrm{Re}(s+ai^{\frac{1}{2}})>0$
		$\mathrm{ker}[a(t^2-b^2)^{\frac{1}{2}}]+i\,\mathrm{kei}[a(t^2-b^2)^{\frac{1}{2}}]$	$t>b$		
	9	0	$0<t<b$	$\dfrac{e^{-b(s^2-ia^2)^{\frac{1}{2}}}}{s^2-ia^2}\left\{\dfrac{i^{\frac{1}{2}}s}{a}+i^{\frac{1}{2}}a\left[b+\dfrac{1}{(s^2-ia^2)^{\frac{1}{2}}}\right]\cdot \log\dfrac{[s+(s^2-ia^2)^{\frac{1}{2}}]}{i^{\frac{1}{2}}a}\right\}$	$\mathrm{Re}(s+ai^{\frac{1}{2}})>0$
		$(t^2-b^2)^{\frac{1}{2}}\{\mathrm{ker}_1[a(t^2-b^2)^{\frac{1}{2}}] + i\,\mathrm{kei}_1[a(t^2-b^2)^{\frac{1}{2}}]\}$	$t>b$		
	10	0	$0<t<b$	$\dfrac{\pi e^{-bs-\frac{i\nu\pi}{2}}}{2(s^2-ia^2)^{\frac{1}{2}}\sin(\nu\pi)}\left\{\left[\dfrac{s+(s^2-ia^2)^{\frac{1}{2}}}{ai^{\frac{1}{2}}}\right]^{\nu} - \left[\dfrac{ai^{\frac{1}{2}}}{s+(s^2-ia^2)^{\frac{1}{2}}}\right]^{\nu}\right\}$	$\lvert\mathrm{Re}\,\nu\rvert<1$, $\mathrm{Re}(s+ai^{\frac{1}{2}})>0$
		$\left(\frac{t-b}{t+b}\right)^{\frac{\nu}{2}}\left\{\mathrm{ker}_{\nu}[a(t^2-b^2)^{\frac{1}{2}}] + i\,\mathrm{kei}_{\nu}[a(t^2-b^2)^{\frac{1}{2}}]\right\}$	$t>b$		
36.31.2.1	1	0	$0<t<b$	$\left(\dfrac{2b}{s}\right)^{\mu+\nu}\dfrac{\Gamma(\mu+\nu+\frac{1}{2})}{\pi^{\frac{1}{2}}}K_{\nu-\mu}(bs)$	$\mathrm{Re}(\mu+\nu)>-\frac{1}{2}$, $\mathrm{Re}\,s>0$
		$(t^2-b^2)^{\mu+\nu-\frac{1}{2}}{}_2F_1[\mu,\nu;\mu+\nu+\frac{1}{2};1-\frac{t^2}{b^2}]$	$t>b$		

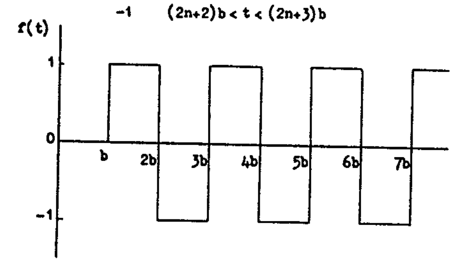
		f(t)		g(s)	
36.35	1	0	$2nb<t<(2n+1)b$	$\dfrac{1}{s(1+e^{bs})}$	$n=0,1,2,.$ $\mathrm{Re}\,s>0$
		1	$(2n+1)b<t<(2n+2)b$		



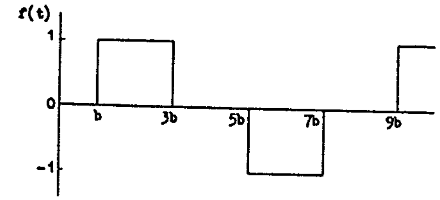
		f(t)		g(s)	
	2	0	$0<t<b$	$\dfrac{\mathrm{sech}(bs)}{2s}$	$n=0,1,2,.$ $\mathrm{Re}\,s<0$
		1	$(4n+1)b<t<(4n+3)b$		
		0	$(4n+3)b<t<(4n+5)b$		



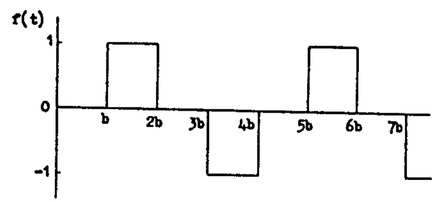
		f(t)		g(s)	
	3	0	$0<t<b$	$\dfrac{1-e^{-bs}}{s(1+e^{bs})}$	$n=0,1,2,.$ $\mathrm{Re}\,s>0$
		1	$(2n+1)b<t<(2n+2)b$		
		-1	$(2n+2)b<t<(2n+3)b$		



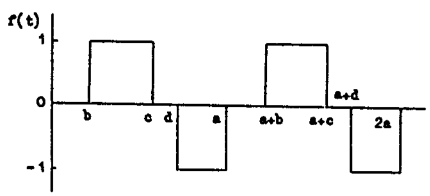
	f(t)		g(s)	
36.35 (Contd.) 4	1	$(8n-7)b < t < (8n-5)b$	$\frac{\sinh(bs)}{s\cosh(2bs)}$	$n = 1,2,3,\ldots$ $\mathrm{Re}\, s > 0$
	-1	$(8n-3)b < t < (8n-1)b$		
	0	otherwise		



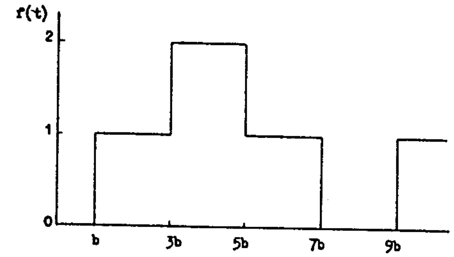
5	1	$(4n+1)b < t < (4n+2)b$	$\frac{1-e^{-bs}}{s(e^{bs}+e^{-bs})}$	$n = 0,1,2,\ldots$ $\mathrm{Re}\, s > 0$
	-1	$(4n+3)b < t < (4n+4)b$		
	0	otherwise		



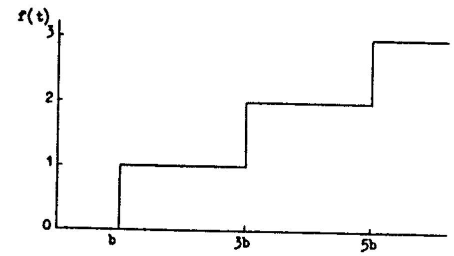
6	0	$na < t < na+b$ and $na+c < t < na+d$	$\frac{e^{-bs}-e^{-cs}+e^{-as}-e^{-ds}}{s(1-e^{-as})}$	$n = 0,1,2,\ldots$ $a > d > c > b$ $\mathrm{Re}\, s > 0$
	1	$na+b < t < na+c$		
	-1	$na+d < t < (n+1)a$		



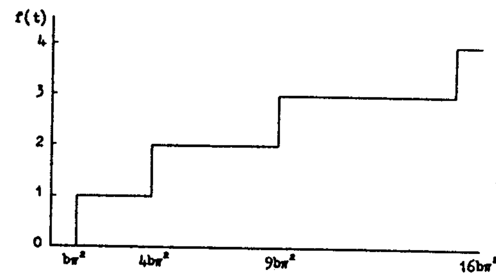
	f(t)		g(s)	
36.35 (Contd.) 7	1	$(4n-3)b < t < (4n-1)b$	$\frac{\cosh(bs)}{s\cosh(2bs)}$	$n = 1,2,3,\ldots$ $\mathrm{Re}\, s > 0$
	2	$(8n-5)b < t < (8n-3)b$		
	0	otherwise		



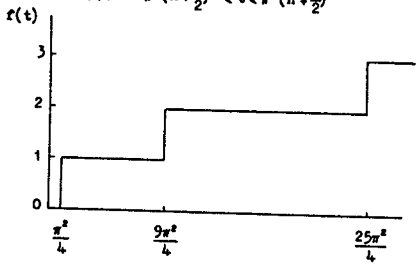
8	0	$0 < t < b$	$\frac{\operatorname{cosech} bs}{2s}$	$n = 1,2,3,\ldots$ $\mathrm{Re}\, s > 0$
	n	$(2n-1)b < t < (2n+1)b$		



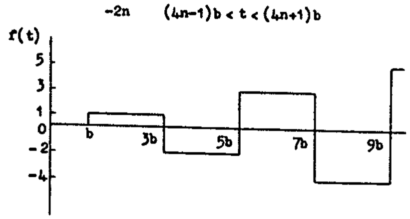
9	n	$b\pi^2 n^2 < t < b\pi^2(n+1)^2$	$\frac{1}{2s}[\theta_3(0\|bs)-1]$	$n = 0,1,2,\ldots$ $\mathrm{Re}\, s > 0$



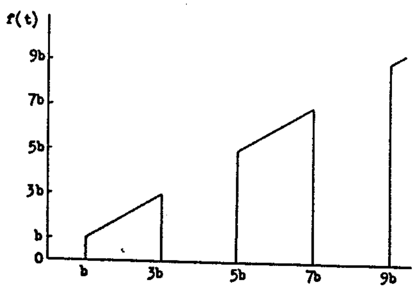
		f(t)		g(s)	
36.35 (Contd.)	10	0	$0<t<\frac{\pi^2}{4}$	$\frac{1}{2s}\,\theta_2(0\|s)$	$n=0,1,2,\dots$ Re $s>0$
		$n+1$	$\pi^2(n+\frac{1}{2})^2<t<\pi^2(n+\frac{3}{2})^2$		



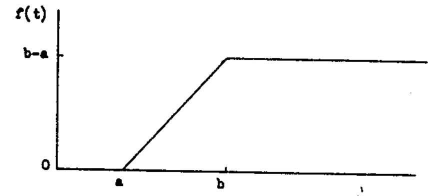
11	0	$0<t<b$	$\frac{\sinh(bs)}{2s\cosh^2(bs)}$	$n=1,2,3,\dots$ Re $s>0$
	$2n-1$	$(4n-3)b<t<(4n-1)b$		
	$-2n$	$(4n-1)b<t<(4n+1)b$		



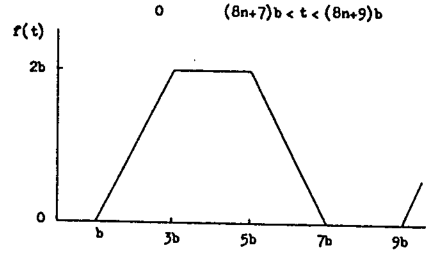
12	0	$0<t<b$	$\frac{1+bs\tanh(bs)}{2s^2\cosh(bs)}$	$n=1,2,3,\dots$ Re $s>0$
	t	$(4n-3)b<t<(4n-1)b$		
	0	$(4n-1)b<t<(4n+1)b$		



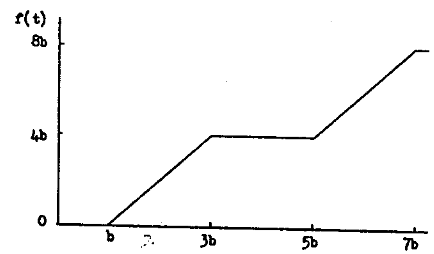
		f(t)		g(s)	
36.35.1	1	0	$0<t<a$	$\frac{e^{-as}-e^{-bs}}{s^2}$	Re $s>0$
		$t-a$	$a<t<b$		
		$b-a$	$t>b$		



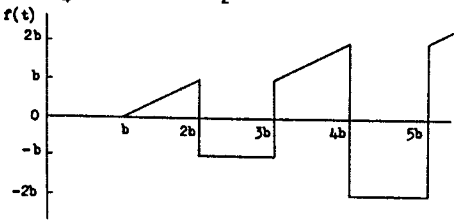
2	0	$0<t<b$	$\frac{\sinh(bs)}{s^2\cosh(2bs)}$	$n=0,1,2,\dots$ Re $s>0$
	$t-(8n+1)b$	$(8n+1)b<t<(8n+3)b$		
	$2b$	$(8n+3)b<t<(8n+5)b$		
	$-t+(8n+7)b$	$(8n+5)b<t<(8n+7)b$		
	0	$(8n+7)b<t<(8n+9)b$		



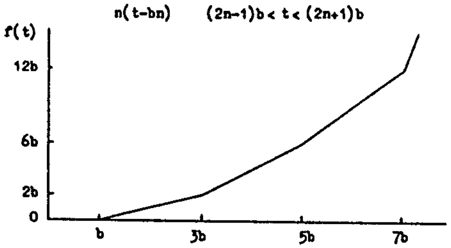
3		$0<t<b$	$\frac{\mathrm{sech}(bs)}{s^2}$	$n=1,2,3,\dots$ Re $s>0$
	$t-(-1)^n(t-2nb)$	$(2n-1)b<t<(2n+1)b$		



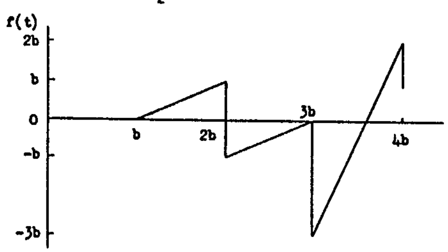
		f(t)		g(s)	
36.35.1 (Contd.)	4	$\frac{1}{4}[1-(-1)^n](2t-b)+\frac{1}{2}(-1)^n bn$	$nb<t<(n+1)b$	$\frac{1}{s^2(e^{bs}+1)}$	$n=0,1,2,\ldots$ $\operatorname{Re} s>0$



		f(t)		g(s)	
	5	0	$0<t<b$	$\frac{\operatorname{cosech}(bs)}{2s^2}$	$n=1,2,3,\ldots$ $\operatorname{Re} s>0$
		$n(t-bn)$	$(2n-1)b<t<(2n+1)b$		



		f(t)		g(s)	
	6	$nt-\frac{1}{2}bn(n+1)$	$nb<t<(n+1)b$	$\frac{1}{s^2(e^{bs}-1)}$	$n=0,1,2,\ldots$ $\operatorname{Re} s>0$



		f(t)		g(s)	
	7	$\frac{1-a^n}{1-a}t-b\frac{1-(n+1)a^n+na^{n+1}}{(1-a)^2}$	$nb<t<(n+1)b$	$\frac{1}{s^2(e^{bs}-a)}$	$n=0,1,2,\ldots$ $\operatorname{Re} s>\operatorname{Max} 0,$ $\frac{1}{b}\operatorname{Re}(\log a)$
	8	0	$0<t<a$	$\frac{e^{-as}-e^{-bs}}{s^3}$	$\operatorname{Re} s>0$
		$\frac{1}{2}(t-a)^2$	$a<t<b$		
		$t(b-a)+\frac{1}{2}(a^2-b^2)$	$t>b$		

		f(t)		g(s)	
36.35.1 (Contd.)	9	0	$t<a$	$\frac{(e^{-\frac{as}{2}}-e^{-\frac{bs}{2}})^2}{s^3}$	$\operatorname{Re} s>0$
		$\frac{1}{2}(t-a)^2$	$a<t<\frac{a+b}{2}$		
		$\frac{1}{4}(b-a)^2-\frac{1}{2}(t-b)^2$	$\frac{a+b}{2}<t<b$		
		$\frac{1}{4}(b-a)^2$	$t>b$		
36.35.2	1	0	$0<t<\frac{1}{2}$	$\frac{\pi^{\frac{1}{2}}\Gamma(\nu+1)\operatorname{cosech}\frac{s}{2}[I_{\nu+\frac{1}{2}}(s)-L_{\nu+\frac{1}{2}}(s)]}{4s^{\nu+\frac{1}{2}}}$	$n=0,1,2,\ldots$ $\operatorname{Re}\nu>-1$ $\operatorname{Re} s>0$
		$[\frac{3}{4}+t-n-(t-n)^2]^\nu$	$n+\frac{1}{2}<t<n+\frac{3}{2}$		
36.35.5	1	0	$\frac{2n\pi}{b}<t<\frac{(2n+1)\pi}{b}$	$\frac{b}{s^2+b^2}\frac{1}{e^{\frac{\pi}{b}s}-1}$	$n=0,1,2,\ldots$ $\operatorname{Re} s>0$
		$-\sin(bt)$	$\frac{(2n+1)\pi}{b}<t<\frac{(2n+2)\pi}{b}$		
37	1	$\operatorname{Cih}(at)-\log a$		$-\frac{1}{2s}\log(s^2-a^2)$	$\operatorname{Re} s>\lvert\operatorname{Re} a\rvert$
	2	$J_n^m(at)$		$\frac{2^m a^{n-m}(s^2+a^2)^{\frac{m-1}{2}}}{[s+(s^2+a^2)^{\frac{1}{2}}]^n}$	$n>m-1$ $n,m=0,1,2,\ldots$ $\operatorname{Re} s>\lvert\operatorname{Im} a\rvert$
	3	$U^{n\,m}(at)$		$\frac{1}{s+a}P_m(\frac{s-a}{s+a})P_n(\frac{s-a}{s+a})$	$m,n=0,1,2,\ldots$ $\operatorname{Re} s>-\operatorname{Re} a$
	4	$V_n(at)$		$\frac{2}{s-a}Q_n(\frac{s+a}{s-a})$	$\operatorname{Re} s>0$
	5	$\mu(at,b)$		$\frac{\Gamma(b+1)}{s(\log\frac{s}{a})^{b+1}}$	$\operatorname{Re} b>-1$ $\operatorname{Re} s>\operatorname{Re} a$

		$f(t)$	$g(s)$	
37 (Contd.)	6	$\nu(at,b)$	$\dfrac{a^b}{s^{b+1}\log\frac{s}{a}}$	Re b > − 1 Re s > Re a
	7	$\nu(at)$	$\dfrac{1}{s\log\frac{s}{a}}$	Re s > o
37.2	1	$\dfrac{1}{t^{\frac{1}{2}}}\mu(at^{\frac{1}{2}},b)$	$\dfrac{2^{b+1}\pi^{\frac{1}{2}}}{s^{\frac{1}{2}}}\mu(\frac{a^2}{4s},b)$	Re s > o
	2	$\dfrac{\nu(at^{\frac{1}{2}})}{t^{\frac{1}{2}}}$	$\dfrac{2\pi^{\frac{1}{2}}}{s^{\frac{1}{2}}}\nu(\frac{a^2}{4s})$	Re s > o
	3	$\nu(at^{\frac{1}{2}},b)$	$\dfrac{a\pi^{\frac{1}{2}}}{4s^{\frac{3}{2}}}\nu(\frac{a^2}{4s},\frac{b-1}{2})$	Re b > − 2 Re s > o
	4	$\dfrac{1}{t^{\frac{1}{2}}}\nu(at^{\frac{1}{2}},b)$	$\dfrac{\pi^{\frac{1}{2}}}{s^{\frac{1}{2}}}\nu(\frac{a^2}{4s},\frac{b}{2})$	Re b > − 1 Re s > o
37.3	1	$\dfrac{\nu(at)}{1-e^{-at}}$	$\frac{1}{a}\int_0^\infty \zeta(u+1,\frac{s}{a})\,du$	Re s > Re a
	2	$\nu(e^{-at})$	$\int_0^\infty \dfrac{du}{(s+au)\Gamma(u+1)}$	Re s > o
	3	$\nu(1-e^{-at})$	$\frac{1}{a}\Gamma(\frac{s}{a})\nu(1,\frac{s}{a})$	Re a > o
37.7	1	$t\,\mathrm{Cih}(at)-\dfrac{\sinh(at)}{a}-t\log a$	$-\dfrac{1}{2s^2}\log(s^2-a^2)$	Re a > o Re s > Re a

Part II

INVERSE TRANSFORMS

Section 1 • Operations

	$g(s)$	$f(t)$	
Linearity, Scale Change & Translation			
1.	$a\,g(s)$	$a\,f(t)$	
2.	$g(as)$	$\frac{1}{a}\,f(\frac{t}{a})$	$a>0$
3.	$g(as-b)$	$a^{-1}\,e^{\frac{b}{a}t}\,f(\frac{t}{a})$	$a>0$
4.	$g_1(s) \pm g_2(s)$	$f_1(t) \pm f_2(t)$	
5.	$g(s+a)-g(s)$	$(e^{-at}-1)f(t)$	
6.	$g(s-a)+g(s+a)$	$2f(t)\cosh(at)$	
7.	$g(s-a)-g(s+a)$	$2f(t)\sinh(at)$	
8.	$g(s-ia)+g(s+ia)$	$2f(t)\cos(at)$	

	$g(s)$	$f(t)$	
9.	$g(s-ia)-g(s+ia)$	$2if(t)\sin(at)$	
10.	$\Delta_a^n g(s)$	$(e^{-at}-1)^n f(t)$	$n=1,2,3,\ldots$

Multiplication by a Function

	$g(s)$	$f(t)$	
11.	$s\,g(s)$	$\frac{df(t)}{dt}+f(o)$	
12.	$s^n g(s)$	$\frac{d^n f(t)}{dt^n}+\sum_{k=0}^{n-1} f^{(k)}(o)s^{n-k-1}$	$n=1,2,3,\ldots$
13.	$\frac{1}{s^n}g(s)$	$\int_o^t\cdots\int_o^t f(u)(du)^n$	$n=1,2,3,\ldots$
14.	$(s-1)\ldots(s-n)g(s-n)$	$\left(e^t\frac{d}{dt}\right)^n f(t)$ if $f^{(k)}(o)=0$ for $k=0,1,\ldots,n-1$	$n=1,2,3,\ldots$
15.	$\frac{g(\frac{s}{a})}{a e^{\frac{b}{a}s}}$	$0 \quad t<\frac{b}{a}$; $f(at-b) \quad t>\frac{b}{a}$	$a,b>o$
16.	$g(s)\,\frac{1+e^{-as}}{1-e^{-as}}$	$f(t)+2\sum_{1\leq n<\frac{t}{a}} f(t-an)$	$a>o$
17.	$\frac{g(s)}{(e^{as}+b)^{\nu}}$	$\sum_{o\leq n<\frac{t}{a}-\nu}\binom{-\nu}{n}b^n f(t-a\nu-an)$	$a,\nu>o$
18.	$g(s)(1+be^{-as})^{\nu}$	$\sum_{o\leq n\leq\frac{t}{a}}\binom{\nu}{n}b^n f(t-an)$	$a>o$
19.	$g_1(s)g_2(s)$	$\int_o^t f_1(u)f_2(t-u)du$	

Composite Functions

	$g(s)$	$f(t)$	
20.	$\frac{1}{s^{\frac{1}{2}}}g(\frac{1}{s})$	$\frac{1}{(\pi t)^{\frac{1}{2}}}\int_o^{\infty}\cos(2u^{\frac{1}{2}}t^{\frac{1}{2}})f(u)du$	
21.	$\frac{1}{s}g(\frac{1}{s})$	$\int_o^{\infty}J_o(2t^{\frac{1}{2}}u^{\frac{1}{2}})f(u)du$	
22.	$\frac{1}{s^{\frac{3}{2}}}g(\frac{1}{s})$	$\pi^{-\frac{1}{2}}\int_o^{\infty}u^{-\frac{1}{2}}\sin(2u^{\frac{1}{2}}t^{\frac{1}{2}})f(u)du$	
23.	$\frac{1}{s^{2\nu+1}}g(\frac{1}{s})$	$t^{\nu}\int_o^{\infty}J_{2\nu}(2u^{\frac{1}{2}}t^{\frac{1}{2}})u^{-\nu}f(u)du$	$\mathrm{Re}\,\nu>-\frac{1}{2}$
24.	$\frac{1}{s^{\frac{1}{2}}}g(-\frac{1}{s})$	$\frac{1}{(\pi t)^{\frac{1}{2}}}\int_o^{\infty}\cosh(2t^{\frac{1}{2}}u^{\frac{1}{2}})f(u)du$	
25.	$\frac{1}{s^{\frac{3}{2}}}g(-\frac{1}{s})$	$\pi^{-\frac{1}{2}}\int_o^{\infty}\frac{\sinh(2t^{\frac{1}{2}}u^{\frac{1}{2}})}{u^{\frac{1}{2}}}f(u)du$	
26.	$\frac{1}{s}g(\frac{1}{s^n})$	$\int_o^{\infty}{}_oF_n\left[\frac{1}{n},\frac{2}{n},\ldots,\frac{n-1}{n},1;\ -\frac{ut^n}{n^n}\right]f(u)du$	$n=1,2,3,\ldots$
27.	$\frac{1}{s}g(s+\frac{1}{s})$	$\int_o^t J_o[2(t-u)^{\frac{1}{2}}u^{\frac{1}{2}}]f(u)du$	
28.	$\frac{1}{s^{2\nu+1}}g(s+\frac{a}{s})$	$\int_o^t\left(\frac{t-u}{au}\right)^{\nu}J_{2\nu}[2(aut-au^2)^{\frac{1}{2}}]f(u)du$	
29.	$g(s^{\frac{1}{2}})$	$\frac{1}{2\pi^{\frac{1}{2}}t^{\frac{3}{2}}}\int_o^{\infty}ue^{-\frac{u^2}{4t}}f(u)du$	
30.	$\frac{1}{s^{\frac{1}{2}}}g(s^{\frac{1}{2}})$	$\frac{1}{(\pi t)^{\frac{1}{2}}}\int_o^{\infty}e^{-\frac{u^2}{4t}}f(u)du$	
31.	$s^{\frac{n-1}{2}}g(s^{\frac{1}{2}})$	$\frac{1}{2^{\frac{n}{2}}\pi^{\frac{1}{2}}t^{\frac{n+1}{2}}}\int_o^{\infty}e^{-\frac{u^2}{4t}}He_n\left[\frac{u}{(2t)^{\frac{1}{2}}}\right]f(u)du$	$n=0,1,2,\ldots$

	$g(s)$	$f(t)$
32.	$s^{\nu} g(s^{\frac{1}{2}})$	$\dfrac{2^{\frac{1}{2}}}{\pi^{\frac{1}{2}}(2t)^{\nu+1}} \displaystyle\int_0^{\infty} e^{-\frac{u^2}{8t}} D_{2\nu+1}\left(\frac{u}{2^{\frac{1}{2}} t^{\frac{1}{2}}}\right) f(u)\,du$
33.	$g[(s+1)^{\frac{1}{2}}]$	$\dfrac{1}{2\pi^{\frac{1}{2}} t^{\frac{3}{2}}} \left[\displaystyle\int_0^{\infty} u\, e^{-\frac{u^2}{4t}} f(u)\,du - \int_0^{\infty} u\, e^{-\frac{u^2}{4t}} \int_0^u J_1(v) f[(u^2-v^2)^{\frac{1}{2}}]\,dv\,du \right]$
34.	$s^{\frac{n-1}{2}} g[(s+1)^{\frac{1}{2}}]$	$\dfrac{1}{2^{\frac{n}{2}} \pi^{\frac{1}{2}} t^{\frac{n+1}{2}}} \displaystyle\int_0^{\infty} e^{-\frac{u^2}{4t}} He\left(\frac{u}{2^{\frac{1}{2}} t^{\frac{1}{2}}}\right) \left[f(u) - \int_0^u f[(u^2-v^2)^{\frac{1}{2}}] J_1(v)\,dv \right] du$
35.	$g[(s-1)^{\frac{1}{2}}]$	$\dfrac{1}{2\pi^{\frac{1}{2}} t^{\frac{3}{2}}} \left[\displaystyle\int_0^{\infty} u\, e^{-\frac{u^2}{4t}} f(u)\,du + \int_0^{\infty} u\, e^{-\frac{u^2}{4t}} \int_0^u I_1(v) f[(u^2-v^2)^{\frac{1}{2}}]\,dv\,du \right]$
36.	$s^{\frac{n-1}{2}} g[(s-1)^{\frac{1}{2}}]$	$\dfrac{1}{2^{\frac{n}{2}} \pi^{\frac{1}{2}} t^{\frac{n+1}{2}}} \displaystyle\int_0^{\infty} e^{-\frac{u^2}{4t}} He\left(\frac{u}{2^{\frac{1}{2}} t^{\frac{1}{2}}}\right) \left[f(u) + \int_0^u f[(u^2-v^2)^{\frac{1}{2}}] I_1(v)\,dv \right] du$
37.	$g(s+s^{\frac{1}{2}})$	$\dfrac{1}{2\pi^{\frac{1}{2}}} \displaystyle\int_0^t u(t-u)^{-\frac{3}{2}} e^{-\frac{u^2}{4(t-u)}} f(u)\,du$
38.	$\dfrac{1}{s^{\frac{1}{2}}} g(s+s^{\frac{1}{2}})$	$\pi^{-\frac{1}{2}} \displaystyle\int_0^t (t-u)^{-\frac{1}{2}} e^{-\frac{u^2}{4(t-u)}} f(u)\,du$
39.	$g[(s^2+a^2)^{\frac{1}{2}}]$	$f(t) - a \displaystyle\int_0^t f[(t^2-u^2)^{\frac{1}{2}}] J_1(au)\,du$

	$g(s)$	$f(t)$	
40.	$\dfrac{g[(s^2+a^2)^{\frac{1}{2}}]}{(s^2+a^2)^{\frac{1}{2}}}$	$\displaystyle\int_0^t J_0[a(t^2-u^2)^{\frac{1}{2}}] f(u)\,du$	
41.	$\dfrac{s\, g[(s^2+a^2)^{\frac{1}{2}}]}{(s^2+a^2)^{\frac{1}{2}}}$	$f(t) - at \displaystyle\int_0^t (t^2-u^2)^{-\frac{1}{2}} J_1[a(t^2-u^2)^{\frac{1}{2}}] f(u)\,du$	
42.	$\dfrac{[(s^2+a^2)^{\frac{1}{2}}-s]^{2\nu} g[(s^2+a^2)^{\frac{1}{2}}]}{(s^2+a^2)^{\frac{1}{2}}}$	$a^{2\nu} \displaystyle\int_0^t \left(\frac{t-u}{t+u}\right)^{\nu} J_{2\nu}[a(t^2-u^2)^{\frac{1}{2}}] f(u)\,du$	$\mathrm{Re}\,\nu > -\frac{1}{2}$
43.	$g[(s^2-a^2)^{\frac{1}{2}}]$	$f(t) + a \displaystyle\int_0^t f[(t^2-u^2)^{\frac{1}{2}}] I_1(u)\,du$	
44.	$\dfrac{g[(s^2-a^2)^{\frac{1}{2}}]}{(s^2-a^2)^{\frac{1}{2}}}$	$\displaystyle\int_0^t I_0[a(t^2-u^2)^{\frac{1}{2}}] f(u)\,du$	
45.	$\dfrac{s\, g[(s^2-a^2)^{\frac{1}{2}}]}{(s^2-a^2)^{\frac{1}{2}}}$	$f(t) + at \displaystyle\int_0^t (t^2-u^2)^{-\frac{1}{2}} I_1[a(t^2-u^2)^{\frac{1}{2}}] f(u)\,du$	
46.	$\dfrac{[s-(s^2-a^2)^{\frac{1}{2}}]^{2\nu} g[(s^2-a^2)^{\frac{1}{2}}]}{(s^2-a^2)^{\frac{1}{2}}}$	$a^{2\nu} \displaystyle\int_0^t \left(\frac{t-u}{t+u}\right)^{\nu} I_{2\nu}[a(t^2-u^2)^{\frac{1}{2}}] f(u)\,du$	$\mathrm{Re}\,\nu > -\frac{1}{2}$
47.	$\dfrac{1}{(s+a)^{\nu}} g[bs+(s+a)^{\frac{1}{2}}]$	$\dfrac{2^{\nu-\frac{1}{2}}}{\pi^{\frac{1}{2}}} \displaystyle\int_0^{\frac{t}{b}} (t-bu)^{\nu-1} \exp\left[-a(t-bu) - \frac{u^2}{8(t-bu)}\right] D_{1-2\nu}\left[\frac{u}{2^{\frac{1}{2}}(t-bu)^{\frac{1}{2}}}\right] f(u)\,du$	$b > 0$
48.	$\dfrac{[(s^2+a^2)^{\frac{1}{2}}-s]^{2\nu} g[(s^2+a^2)^{\frac{1}{2}}-s]}{(s^2+a^2)^{\frac{1}{2}}}$	$a^{2\nu} t^{\nu} \displaystyle\int_0^{\infty} (t+2u)^{-\nu} J_{2\nu}[a(t^2+2tu)^{\frac{1}{2}}] f(u)\,du$	$\mathrm{Re}\,\nu > -\frac{1}{2}$
49.	$\dfrac{[(s^2+a^2)^{\frac{1}{2}}-s]^{2\nu} g[s-(s^2+a^2)^{\frac{1}{2}}]}{(s^2+a^2)^{\frac{1}{2}}}$	$a^{2\nu} t^{\nu} \displaystyle\int_0^{\infty} (t-2u)^{-\nu} J_{2\nu}[a(t^2-2tu)^{\frac{1}{2}}] f(u)\,du$	$\mathrm{Re}\,\nu > -\frac{1}{2}$

	$g(s)$	$f(t)$	
50.	$\dfrac{[s-(s^2-a^2)^{\frac{1}{2}}]^{2\nu} g[(s^2-a^2)^{\frac{1}{2}}-s]}{(s^2-a^2)^{\frac{1}{2}}}$	$a^{2\nu} t^{\nu} \int_0^{\infty} (t+2u)^{-\nu} I_{2\nu}[a(t^2+2tu)^{\frac{1}{2}}] f(u)\,du$	$\mathrm{Re}\,\nu > -\frac{1}{2}$
51.	$\dfrac{[s-(s^2-a^2)^{\frac{1}{2}}]^{2\nu} g[s-(s^2-a^2)^{\frac{1}{2}}]}{(s^2-a^2)^{\frac{1}{2}}}$	$a^{2\nu} t^{\nu} \int_0^{\infty} (t-2u)^{-\nu} I_{2\nu}[a(t^2-2tu)^{\frac{1}{2}}] f(u)\,du$	$\mathrm{Re}\,\nu > -\frac{1}{2}$
52.	$g[b+(s^2+a^2)^{\frac{1}{2}}-s]-g(b)$	$-at^{-\frac{1}{2}} \int_0^{\infty} e^{-bu}(t+2u)^{-\frac{1}{2}} J_1[at^{\frac{1}{2}}(t+2u)^{\frac{1}{2}}] u f(u)\,du$	
53.	$g[b+(s^2-a^2)^{\frac{1}{2}}-s]-g(b)$	$at^{-\frac{1}{2}} \int_0^{\infty} e^{-bu}(t+2u)^{-\frac{1}{2}} I_1[at^{\frac{1}{2}}(t+2u)^{\frac{1}{2}}] u f(u)\,du$	
54.	$g(\log s^a)$	$\int_0^{\infty} \dfrac{t^{au-1}}{\Gamma(au)} f(u)\,du$	
55.	$\frac{1}{s} g(\log s)$	$\int_0^{\infty} \dfrac{t^{u}}{\Gamma(u+1)} f(u)\,du$	
56.	$g[w(s)]$	$\int_0^{\infty} r(u,t) f(u)\,du$ where the inverse transform of $e^{-uw(s)}$ is $r(u,t)$	
Differentiation			
57.	$\dfrac{d^n g(s)}{ds^n}$	$(-1)^n t^n f(t)$	$n=0,1,2,\ldots$
58.	$s^n g^{(m)}(s)$	$(-1)^m \dfrac{d^n}{dt^n}[t^m f(t)]$	$m \geq n$ $m,n=0,1,2,\ldots$
59.	$\left(-\dfrac{d}{ds}\right)^m [s^n g(s)]$	$t^m f^{(n)}(t)$	$m \geq n$ $m,n=0,1,2,\ldots$

	$g(s)$	$f(t)$	
60.	$\left(-s\dfrac{d}{ds}\right)^n g(s)$	$\left(\dfrac{d}{dt}t\right)^n f(t)$	$n=0,1,2,\ldots$
61.	$\left(-\dfrac{d}{ds}s\right)^n g(s)$	$\left(t\dfrac{d}{dt}\right)^n f(t)$	$n=0,1,2,\ldots$
62.	$\dfrac{\partial}{\partial a} g(s,a)$	$\dfrac{\partial}{\partial a} f(t,a)$	
Integration			
63.	$\int_s^{\infty} g(u)\,du$	$\dfrac{f(t)}{t}$	
64.	$\frac{1}{s}\int_s^{\infty} g(u)\,du$	$\int_0^{t} v^{-1} f(v)\,dv$	
65.	$\frac{1}{s}\int_0^{s} g(u)\,du$	$\int_t^{\infty} v^{-1} f(v)\,dv$	
66.	$\int_{a_0}^{a} g(s,u)\,du$	$\int_{a_0}^{a} f(t,v)\,dv$	
67.	$\int_s^{\infty} \cdots \int_s^{\infty} g(u)(du)^n$	$t^{-n} f(t)$	$n=1,2,3,\ldots$
68.	$\int_s^{\infty} u \int_s^{\infty} \cdots u \int_s^{\infty} u\, g(u)(du)^n$	$\left(\dfrac{1}{t}\dfrac{d}{dt}\right)^n f(t)$ if $\left(\dfrac{1}{t}\dfrac{d}{dt}\right)^k f(t)=0$ for $t=0,\ k=0,1,\ldots,n-1$	$n=1,2,3,\ldots$
69.	$\dfrac{1}{1-e^{-as}} \int_0^{a} e^{-su} f(u)\,du$	$f(t+a)=f(t)$	$a>0$

	$g(s)$	$f(t)$	
70.	$\frac{1}{1+e^{-as}}\int_0^a e^{-su} f(u)\,du$	$f(t+a) = -f(t)$	$a > 0$
71.	$\int_0^\infty (e^{su}-1)^{-1} f(u)\,du$	$\sum_{n=1}^{\infty} \frac{1}{n} f(\frac{t}{n})$	
72.	$e^{as}[\,g(s) - \int_0^a e^{-su} f(u)\,du]$	$f(t+a)$	$a > 0$
73.	$\int_0^\infty e^{-\frac{s^2}{4u^2}} g(u^2)\,du$	$\pi^{\frac{1}{2}} f(t^2)$	
74.	$\int_0^\infty u^{-\frac{1}{2}} e^{-\frac{s^2}{4u}} g(u)\,du$	$2\pi^{\frac{1}{2}} f(t^2)$	
75.	$s\int_0^\infty u^{-\frac{3}{2}} e^{-\frac{s^2}{4u}} g(u)\,du$	$4\pi^{\frac{1}{2}} t\, f(t^2)$	
76.	$\int_0^\infty J_0(2s^{\frac{1}{2}}u^{\frac{1}{2}})\, g(u)\,du$	$\frac{1}{t} f(\frac{1}{t})$	
77.	$\frac{1}{s^{\frac{1}{2}}}\int_0^\infty u^{\frac{1}{2}} J_1(2s^{\frac{1}{2}}u^{\frac{1}{2}})\, g(u)\,du$	$f(\frac{1}{t})$	
78.	$\int_0^\infty J_s(au)\, g(u)\,du$	$f(a\sinh t)$	$a > 0$
79.	$\int_0^\infty u^{n-2} e^{-\frac{s^2u^2}{4}} He_n(2^{-\frac{1}{2}}su)\, g(\frac{1}{u^2})\,du$	$2^{\frac{n}{2}}\pi^{\frac{1}{2}} t^n f(t^2)$	$n = 0,1,2,\ldots$
80.	$\int_0^\infty u^{\nu-2} e^{-\frac{s^2u^2}{4}} D_\nu(su)\, g(\frac{1}{2u^2})\,du$	$2^{\frac{1}{2}}\pi^{\frac{1}{2}} t^\nu f(t^2)$	
81.	$\frac{1}{2\pi i}\int_{c-i\infty}^{c+i\infty} g_1(u)\, g_2(s-u)\,du$	$f_1(t) f_2(t)$	

Limiting Values

	$g(s)$	$f(t)$
82.	$\lim_{s\to\infty} s\,g(s)$	$\lim_{t\to 0} f(t)$
83.	$\lim_{s\to 0} s\,g(s)$ if $sg(s)$ is analytic on the imaginary axis and in the right half-plane	$\lim_{t\to\infty} f(t)$
84.	$\lim_{a\to a_0} g(s,a)$	$\lim_{a\to a_0} f(t,a)$

Section 2 • Inverse Transform Pairs

Because of the large number of inverse transforms of polynomials in s (code #1) immediately following, a sub-coding system is used to facilitate the location of particular entries. It makes use of the denominators of the polynomial expressions. The denominators can be expressed as the product of one or more of the following polynomial expressions, where α and β are arbitrary constants.

Code Letter	Polynomial Expression
A	s
B	s^2
C	s^3
D	s^4
E	s^5
F	$s+\alpha$
G	$(s+\alpha)^2$
H	$(s+\alpha)^3$
I	$(s+\alpha)^4$
J	$(s+\alpha)^5$
K	$s^2+\alpha^2$

Code Letter	Polynomial Expression
L	$(s^2+\alpha^2)^2$
M	$s^2-\alpha^2$
N	$(s^2-\alpha^2)^2$
O	$s^2+\alpha s+\beta$
P	$s^3+\alpha^3$
Q	$s^3-\alpha^3$
R	$s^4+\alpha^4$
S	$s^4-\alpha^4$

For example, $s^2(s+\alpha)(s+\beta)$ is of the form BFF

and $s(s+\alpha)^2$ is of the form AG

Specific entries in the table are listed in strict alphabetical order according to this scheme. Most denominators having orders up to s^4 are listed together with a few having higher orders.

Immediately following the alphabetically coded group are listed some inverse transforms of more general polynomials.

		$g(s)$	$f(t)$	
1	1 A	$\frac{1}{s}$	1	Re $s > o$
2	AF	$\frac{1}{s(s+\alpha)}$	$\frac{1-e^{-\alpha t}}{\alpha}$	Re $s >$ Max o, $-$Re α
3		$\frac{s+a}{s(s+\alpha)}$	$\frac{a}{\alpha}+(1-\frac{a}{\alpha})e^{-\alpha t}$	Re $s >$ Max o, $-$Re α
4	AFF	$\frac{1}{s(s+\alpha)(s+\beta)}$	$\frac{1}{\alpha\beta}+\frac{\beta e^{-\alpha t}-\alpha e^{-\beta t}}{\alpha\beta(\alpha-\beta)}$	Re $s >$ Max o, $-$Re α, $-$Re β
5		$\frac{s+a}{s(s+\alpha)(s+\beta)}$	$\frac{a}{\alpha\beta}+\frac{a-\alpha}{\alpha(\alpha-\beta)}e^{-\alpha t}+\frac{a-\beta}{\beta(\beta-\alpha)}e^{-\beta t}$	Re $s >$ Max o, $-$Re α, $-$Re β
6		$\frac{s^2+as+b}{s(s+\alpha)(s+\beta)}$	$\frac{b}{\alpha\beta}+\frac{\alpha^2-a\alpha+b}{\alpha(\alpha-\beta)}e^{-\alpha t}-\frac{\beta^2-a\beta+b}{\beta(\alpha-\beta)}e^{-\beta t}$	Re $s >$ Max o, $-$Re α, $-$Re β
7	AFFF	$\frac{1}{s(s+\alpha)(s+\beta)(s+\gamma)}$	$\frac{1}{\alpha\beta\gamma}-\frac{e^{-\alpha t}}{\alpha(\alpha-\beta)(\alpha-\gamma)}-\frac{e^{-\beta t}}{\beta(\beta-\alpha)(\beta-\gamma)}-\frac{e^{-\gamma t}}{\gamma(\gamma-\alpha)(\gamma-\beta)}$	Re $s >$ Max o, $-$Re α, $-$Re β, $-$Re γ
8		$\frac{s+a}{s(s+\alpha)(s+\beta)(s+\gamma)}$	$\frac{a}{\alpha\beta\gamma}-\frac{a-\alpha}{\alpha(\beta-\alpha)(\gamma-\alpha)}e^{-\alpha t}-\frac{a-\beta}{\beta(\alpha-\beta)(\gamma-\beta)}e^{-\beta t}-\frac{a-\gamma}{\gamma(\alpha-\gamma)(\beta-\gamma)}e^{-\gamma t}$	Re $s >$ Max o, $-$Re α, $-$Re β, $-$Re γ
9		$\frac{s^2+as+b}{s(s+\alpha)(s+\beta)(s+\gamma)}$	$\frac{b}{\alpha\beta\gamma}-\frac{\alpha^2-a\alpha+b}{\alpha(\alpha-\beta)(\alpha-\gamma)}e^{-\alpha t}-\frac{\beta^2-a\beta+b}{\beta(\beta-\alpha)(\beta-\gamma)}e^{-\beta t}-\frac{\gamma^2-a\gamma+b}{\gamma(\gamma-\alpha)(\gamma-\beta)}e^{-\gamma t}$	Re $s >$ Max o, $-$Re α, $-$Re β, $-$Re γ
10		$\frac{s^3+as^2+bs+c}{s(s+\alpha)(s+\beta)(s+\gamma)}$	$\frac{c}{\alpha\beta\gamma}+\frac{\alpha^3-a\alpha^2+b\alpha-c}{\alpha(\beta-\alpha)(\gamma-\alpha)}e^{-\alpha t}+\frac{\beta^3-a\beta^2+b\beta-c}{\beta(\alpha-\beta)(\gamma-\beta)}e^{-\beta t}+\frac{\gamma^3-a\gamma^2+b\gamma-c}{\gamma(\alpha-\gamma)(\beta-\gamma)}e^{-\gamma t}$	Re $s >$ Max o, $-$Re α, $-$Re β, $-$Re γ

1(Contd.)

	$g(s)$	$f(t)$	
11 AG	$\dfrac{1}{s(s+\alpha)^2}$	$\dfrac{1}{\alpha^2}-\dfrac{1}{\alpha}\left(\dfrac{1}{\alpha}+t\right)e^{-\alpha t}$	Re s > Max o, − Re α
12	$\dfrac{s+a}{s(s+\alpha)^2}$	$\dfrac{a}{\alpha^2}+\left[\left(1-\dfrac{a}{\alpha}\right)t-\dfrac{a}{\alpha^2}\right]e^{-\alpha t}$	Re s > Max o, − Re α
13	$\dfrac{s^2+as+b}{s(s+\alpha)^2}$	$\dfrac{b}{\alpha^2}-\left[\dfrac{b}{\alpha^2}-1+\left(\alpha-a+\dfrac{b}{\alpha}\right)t\right]e^{-\alpha t}$	Re s > Max o, − Re α
14 AH	$\dfrac{1}{s(s+\alpha)^3}$	$\dfrac{1}{\alpha^3}(1-e^{-\alpha t})-\dfrac{t}{\alpha^2}e^{-\alpha t}-\dfrac{t^2}{2\alpha}e^{-\alpha t}$	Re s > Max o, − Re α
15	$\dfrac{s+a}{s(s+\alpha)^3}$	$\dfrac{a}{\alpha^3}(1-e^{-\alpha t})-\dfrac{a}{\alpha^2}t\,e^{-\alpha t}+\dfrac{\alpha-a}{2\alpha}t^2e^{-\alpha t}$	Re s > Max o, − Re α
16	$\dfrac{s^2+as+b}{s(s+\alpha)^3}$	$\dfrac{b}{\alpha^3}(1-e^{-\alpha t})+\left(1-\dfrac{b}{\alpha^2}\right)t\,e^{-\alpha t}$ $+\dfrac{1}{2}\left(a-\alpha-\dfrac{b}{\alpha}\right)t^2e^{-\alpha t}$	Re s > Max o, − Re α
17	$\dfrac{s^3+as^2+bs+c}{s(s+\alpha)^3}$	$\dfrac{c}{\alpha^3}+\left(1-\dfrac{c}{\alpha^3}\right)e^{-\alpha t}+\left(a-2\alpha-\dfrac{c}{\alpha^2}\right)t\,e^{-\alpha t}$ $+\dfrac{1}{2}\left(b+\alpha^2-a\alpha-\dfrac{c}{\alpha}\right)t^2e^{-\alpha t}$	Re s > Max o, − Re α
18 AK	$\dfrac{1}{s(s^2+\alpha^2)}$	$\dfrac{1-\cos(\alpha t)}{\alpha^2}$ $=\left(\dfrac{\pi t}{2\alpha^3}\right)^{\frac{1}{2}}H_{\frac{1}{2}}(\alpha t)$	Re s > |Im α|
19	$\dfrac{s^2+2\alpha^2}{s(s^2+4\alpha^2)}$	$\cos^2(\alpha t)$	Re s > 2|Im α|
20	$\dfrac{s+a}{s(s^2+\alpha^2)}$	$\dfrac{a}{\alpha^2}-\dfrac{(a^2+\alpha^2)^{\frac{1}{2}}}{\alpha^2}\cos\left(\alpha t+\tan^{-1}\dfrac{\alpha}{a}\right)$	Re s > |Im α|

1(Contd.)

	$g(s)$	$f(t)$	
21 AK	$\dfrac{s^2+as+b}{s(s^2+\alpha^2)}$	$\dfrac{b-[(b-\alpha^2)^2+a^2\alpha^2]^{\frac{1}{2}}\cos\left(\alpha t+\tan^{-1}\dfrac{a\alpha}{b-\alpha^2}\right)}{\alpha^2}$	Re s > |Im α|
22 AM	$\dfrac{1}{s(s^2-\alpha^2)}$	$\dfrac{2\sinh^2\frac{\alpha t}{2}}{\alpha^2}=\dfrac{\cosh(\alpha t)-1}{\alpha^2}$ $=\left(\dfrac{\pi t}{2\alpha^3}\right)^{\frac{1}{2}}L_{\frac{1}{2}}(\alpha t)$	Re s > |Re α|
23	$\dfrac{s+a}{s(s^2-\alpha^2)}$	$\dfrac{1}{\alpha}\sinh(\alpha t)+\dfrac{a}{\alpha^2}\cosh(\alpha t)-\dfrac{a}{\alpha^2}$	Re s > |Re α|
24	$\dfrac{s^2+as+b}{s(s^2-\alpha^2)}$	$\dfrac{a}{\alpha}\sinh(\alpha t)+\dfrac{\alpha^2+b}{\alpha^2}\cosh(\alpha t)-\dfrac{b}{\alpha^2}$	Re s > |Re α|
25	$\dfrac{s^2-2\alpha^2}{s(s^2-4\alpha^2)}$	$\cosh^2(\alpha t)$	Re s > 2|Re α|
26 AO	$\dfrac{1}{s(s^2+\alpha s+\beta)}$	$\dfrac{1}{\beta}-\dfrac{1}{r_1-r_2}\left(\dfrac{e^{-r_2t}}{r_2}-\dfrac{e^{-r_1t}}{r_1}\right)$ if $\alpha^2\neq 4\beta$ where $-r_1$ and $-r_2$ are the roots of $s^2+\alpha s+\beta=0$ $\dfrac{1}{\beta}\left[1-\left(1+\dfrac{\alpha t}{2}\right)e^{-\frac{\alpha t}{2}}\right]$ if $\alpha^2=4\beta$ If $4\beta-\alpha^2$ is real and positive a convenient form is $\dfrac{1}{\beta}-\dfrac{e^{-\alpha t}}{\left(\beta^2-\dfrac{\alpha^2\beta}{4}\right)^{\frac{1}{2}}}\sin\left[\left(\beta-\dfrac{\alpha^2}{4}\right)^{\frac{1}{2}}t+\tan^{-1}\left(\dfrac{4\beta}{\alpha^2}-1\right)^{\frac{1}{2}}\right]$	Re s > Max o, − Re r_1, − Re r
27	$\dfrac{s+a}{s(s^2+\alpha s+\beta)}$ $=\dfrac{1}{s^2+\alpha s+\beta}+\dfrac{a}{s(s^2+\alpha s+\beta)}$	See under AO and O.	Re s > Max o, $-\frac{1}{2}$ Re α + $\left\|\mathrm{Im}\left(\beta-\frac{\alpha^2}{4}\right)^{\frac{1}{2}}\right\|$

1(Contd.)

		g(s)	f(t)	
28	AO	$\frac{s^2+as+b}{s(s^2+\alpha s+\beta)}$ $= \frac{s+a}{s^2+\alpha s+\beta} + \frac{b}{s(s^2+\alpha s+\beta)}$	See under AO and O.	$\mathrm{Re}\, s > \mathrm{Max}\, o, -\frac{1}{2}\mathrm{Re}\,\alpha + \lvert \mathrm{Im}(\beta - \frac{\alpha^2}{4})^{\frac{1}{2}} \rvert$
29	AP	$\frac{1}{s(s^3+\alpha^3)}$	$\frac{1}{\alpha^3}[1 - \frac{1}{3}e^{-\alpha t} - \frac{2}{3}e^{\frac{\alpha t}{2}}\cos\frac{3^{\frac{1}{2}}\alpha t}{2}]$	$\mathrm{Re}\, s > \mathrm{Max}\, o, -\mathrm{Re}\,\alpha, \frac{1}{2}\mathrm{Re}\,\alpha + \frac{3^{\frac{1}{2}}}{2}\lvert \mathrm{Im}\,\alpha \rvert$
30		$\frac{s+a}{s(s^3+\alpha^3)}$	$\frac{a}{\alpha^3} - \frac{1}{3\alpha^3}\left[(a-\alpha)e^{-\alpha t} + (2a+\alpha)e^{\frac{\alpha t}{2}}\cos\frac{3^{\frac{1}{2}}\alpha t}{2} - 3^{\frac{1}{2}}\alpha e^{\frac{\alpha t}{2}}\sin\frac{3^{\frac{1}{2}}\alpha t}{2}\right]$	$\mathrm{Re}\, s > \mathrm{Max}\, o, -\mathrm{Re}\,\alpha, \frac{1}{2}\mathrm{Re}\,\alpha + \frac{3^{\frac{1}{2}}}{2}\lvert \mathrm{Im}\,\alpha \rvert$
31		$\frac{s^2+as+b}{s(s^3+\alpha^3)}$	$\frac{b}{\alpha^3} - \frac{1}{3\alpha^3}\left[(b+\alpha^2-a\alpha)e^{-\alpha t} + (2b-\alpha^2+a\alpha) \cdot e^{\frac{\alpha t}{2}}\cos\frac{3^{\frac{1}{2}}\alpha t}{2} - 3^{\frac{1}{2}}\alpha(\alpha+a)e^{\frac{\alpha t}{2}}\sin\frac{3^{\frac{1}{2}}\alpha t}{2}\right]$	$\mathrm{Re}\, s > \mathrm{Max}\, o, -\mathrm{Re}\,\alpha, \frac{1}{2}\mathrm{Re}\,\alpha + \frac{3^{\frac{1}{2}}}{2}\lvert \mathrm{Im}\,\alpha \rvert$
32		$\frac{s^3+as^2+bs+c}{s(s^3+\alpha^3)}$	$\frac{c}{\alpha^3} + \frac{1}{3\alpha^3}\left[(\alpha^3-c-a\alpha^2+b\alpha)e^{-\alpha t} + (2\alpha^3-2c+a\alpha^2-b\alpha)e^{\frac{\alpha t}{2}}\cos\frac{3^{\frac{1}{2}}\alpha t}{2} + 3^{\frac{1}{2}}\alpha(a\alpha+b)e^{\frac{\alpha t}{2}}\sin\frac{3^{\frac{1}{2}}\alpha t}{2}\right]$	$\mathrm{Re}\, s > \mathrm{Max}\, o, -\mathrm{Re}\,\alpha, \frac{1}{2}\mathrm{Re}\,\alpha + \frac{3^{\frac{1}{2}}}{2}\lvert \mathrm{Im}\,\alpha \rvert$
33	AQ	$\frac{1}{s(s^3-\alpha^3)}$	$\frac{1}{\alpha^3}\left[\frac{1}{3}e^{\alpha t} + \frac{2}{3}e^{-\frac{\alpha t}{2}}\cos\left(\frac{3^{\frac{1}{2}}\alpha t}{2}\right) - 1\right]$	$\mathrm{Re}\, s > \mathrm{Max}\, o, \mathrm{Re}\,\alpha, \frac{1}{2}(-\mathrm{Re}\,\alpha + 3^{\frac{1}{2}}\lvert \mathrm{Im}\,\alpha \rvert)$
34		$\frac{s+a}{s(s^3-\alpha^3)}$	$\frac{1}{3\alpha^3}\left[(a+\alpha)e^{\alpha t} + (2a-\alpha)e^{-\frac{\alpha t}{2}}\cos\left(\frac{3^{\frac{1}{2}}\alpha t}{2}\right) - 3^{\frac{1}{2}}\alpha e^{-\frac{\alpha t}{2}}\sin\left(\frac{3^{\frac{1}{2}}\alpha t}{2}\right)\right] - \frac{a}{\alpha^3}$	$\mathrm{Re}\, s > \mathrm{Max}\, o, \mathrm{Re}\,\alpha, \frac{1}{2}(-\mathrm{Re}\,\alpha + 3^{\frac{1}{2}}\lvert \mathrm{Im}\,\alpha \rvert)$

1(Contd.)

		g(s)	f(t)	
35	AQ	$\frac{s^2+as+b}{s(s^3-\alpha^3)}$	$\frac{1}{3\alpha^3}\left[(b+\alpha^2+a\alpha)e^{\alpha t} + (2b-\alpha^2-a\alpha)e^{-\frac{\alpha t}{2}}\cos\left(\frac{3^{\frac{1}{2}}\alpha t}{2}\right) + 3^{\frac{1}{2}}\alpha(\alpha-a)e^{-\frac{\alpha t}{2}}\sin\left(\frac{3^{\frac{1}{2}}\alpha t}{2}\right)\right] - \frac{b}{\alpha^3}$	$\mathrm{Re}\, s > \mathrm{Max}\, o, \mathrm{Re}\,\alpha, \frac{1}{2}(-\mathrm{Re}\,\alpha + 3^{\frac{1}{2}}\lvert \mathrm{Im}\,\alpha \rvert)$
36		$\frac{s^3+as^2+bs+c}{s(s^3-\alpha^3)}$	$\frac{1}{3\alpha^3}\left[(\alpha^3+c+a\alpha^2+b\alpha)e^{\alpha t} + (2\alpha^3+2c-a\alpha^2-b\alpha)e^{-\frac{\alpha t}{2}}\cos\left(\frac{3^{\frac{1}{2}}\alpha t}{2}\right) + 3^{\frac{1}{2}}\alpha(a\alpha-b)e^{-\frac{\alpha t}{2}}\sin\left(\frac{3^{\frac{1}{2}}\alpha t}{2}\right)\right] - \frac{c}{\alpha^3}$	$\mathrm{Re}\, s > \mathrm{Max}\, o, \mathrm{Re}\,\alpha, \frac{1}{2}(-\mathrm{Re}\,\alpha + 3^{\frac{1}{2}}\lvert \mathrm{Im}\,\alpha \rvert)$
37	B	$\frac{1}{s^2}$	t	$\mathrm{Re}\, s > o$
38		$\frac{s+a}{s^2}$	$1+at$	$\mathrm{Re}\, s > o$
39	BF	$\frac{1}{s^2(s+\alpha)}$	$\frac{1}{\alpha^2}\left(e^{-\alpha t} + \alpha t - 1\right)$	$\mathrm{Re}\, s > \mathrm{Max}\, o, -\mathrm{Re}\,\alpha$
40		$\frac{s+a}{s^2(s+\alpha)}$	$\left(\frac{1}{\alpha} - \frac{a}{\alpha^2}\right)\left(1-e^{-\alpha t}\right) + \frac{a}{\alpha}t$	$\mathrm{Re}\, s > \mathrm{Max}\, o, -\mathrm{Re}\,\alpha$
41		$\frac{s^2+as+b}{s^2(s+\alpha)}$	$\frac{bt}{\alpha} + \frac{a}{\alpha} - \frac{b}{\alpha^2} - \left(\frac{a}{\alpha} - \frac{b}{\alpha^2} - 1\right)e^{-\alpha t}$	$\mathrm{Re}\, s > \mathrm{Max}\, o, -\mathrm{Re}\,\alpha$
42	BFF	$\frac{1}{s^2(s+\alpha)(s+\beta)}$	$-\frac{\alpha+\beta}{\alpha^2\beta^2} + \frac{t}{\alpha\beta} - \frac{e^{-\alpha t}}{\alpha^2(\alpha-\beta)} + \frac{e^{-\beta t}}{\beta^2(\alpha-\beta)}$	$\mathrm{Re}\, s > \mathrm{Max}\, o, -\mathrm{Re}\,\alpha, -\mathrm{Re}\,\beta$
43		$\frac{s+a}{s^2(s+\alpha)(s+\beta)}$	$\frac{\alpha\beta-(\alpha+\beta)a}{\alpha^2\beta^2} + \frac{at}{\alpha\beta} - \frac{\alpha-a}{\alpha^2(\alpha-\beta)}e^{-\alpha t} - \frac{\beta-a}{\beta^2(\alpha-\beta)}e^{-\beta t}$	$\mathrm{Re}\, s > \mathrm{Max}\, o, -\mathrm{Re}\,\alpha, -\mathrm{Re}\,\beta$

1(Contd.)		$g(s)$	$f(t)$	
44	BFF	$\frac{s^2+as+b}{s^2(s+\alpha)(s+\beta)}$	$\frac{\alpha\beta a-(\alpha+\beta)b}{\alpha^2\beta^2}+\frac{bt}{\alpha\beta}-\frac{\alpha^2-\alpha a+b}{\alpha^2(\alpha-\beta)}e^{-\alpha t}$ $+\frac{\beta^2-\beta a+b}{\beta^2(\alpha-\beta)}e^{-\beta t}$	$\operatorname{Re} s > \operatorname{Max} o, -\operatorname{Re}\alpha, -\operatorname{Re}\beta$
45		$\frac{s^3+as^2+bs+c}{s^2(s+\alpha)(s+\beta)}$	$\frac{\alpha\beta b-(\alpha+\beta)c}{\alpha^2\beta^2}+\frac{ct}{\alpha\beta}+\frac{\alpha^3-\alpha^2a+\alpha b-c}{\alpha^2(\alpha-\beta)}e^{-\alpha t}$ $-\frac{\beta^3-\beta^2a+\beta b-c}{\beta^2(\alpha-\beta)}e^{-\beta t}$	$\operatorname{Re} s > \operatorname{Max} o, -\operatorname{Re}\alpha, -\operatorname{Re}\beta$
46	BG	$\frac{1}{s^2(s+\alpha)^2}$	$-\frac{2}{\alpha^3}+\frac{t}{\alpha^2}+\frac{2}{\alpha^3}e^{-\alpha t}+\frac{t}{\alpha^2}e^{-\alpha t}$	$\operatorname{Re} s > \operatorname{Max} o, -\operatorname{Re}\alpha$
47		$\frac{s+a}{s^2(s+\alpha)^2}$	$\frac{1}{\alpha^2}-\frac{2a}{\alpha^3}+\frac{a}{\alpha^2}t+\left(-\frac{1}{\alpha^2}+\frac{2a}{\alpha^3}\right)e^{-\alpha t}$ $+\left(-\frac{1}{\alpha}+\frac{a}{\alpha^2}\right)te^{-\alpha t}$	$\operatorname{Re} s > \operatorname{Max} o, -\operatorname{Re}\alpha$
48		$\frac{s^2+as+b}{s^2(s+\alpha)^2}$	$\frac{a}{\alpha^2}-\frac{2b}{\alpha^3}+\frac{b}{\alpha^2}t+\left(-\frac{a}{\alpha^2}+\frac{2b}{\alpha^3}\right)e^{-\alpha t}$ $+\left(1-\frac{a}{\alpha}+\frac{b}{\alpha^2}\right)t\,e^{-\alpha t}$	$\operatorname{Re} s > \operatorname{Max} o, -\operatorname{Re}\alpha$
49		$\frac{s^3+as^2+bs+c}{s^2(s+\alpha)^2}$	$\frac{b}{\alpha^2}-\frac{2c}{\alpha^3}+\frac{c}{\alpha^2}t+\left(1-\frac{b}{\alpha^2}+\frac{2c}{\alpha^3}\right)e^{-\alpha t}$ $+\left(-\alpha+a-\frac{b}{\alpha}+\frac{c}{\alpha^2}\right)te^{-\alpha t}$	$\operatorname{Re} s > \operatorname{Max} o, -\operatorname{Re}\alpha$
50	BK	$\frac{1}{s^2(s^2+\alpha^2)}$	$\frac{t}{\alpha^2}-\frac{\sin(\alpha t)}{\alpha^3}$	$\operatorname{Re} s > \lvert\operatorname{Im}\alpha\rvert$
51		$\frac{s+a}{s^2(s^2+\alpha^2)}$	$\frac{1}{\alpha^2}+\frac{at}{\alpha^2}-\frac{1}{\alpha^2}\cos(\alpha t)-\frac{a}{\alpha^3}\sin(\alpha t)$	$\operatorname{Re} s > \lvert\operatorname{Im}\alpha\rvert$

1(Contd.)		$g(s)$	$f(t)$	
52	BK	$\frac{s^2+as+b}{s^2(s^2+\alpha^2)}$	$\frac{a}{\alpha^2}+\frac{b}{\alpha^2}t-\frac{a}{\alpha^2}\cos(\alpha t)+\left(\frac{1}{\alpha}-\frac{b}{\alpha^3}\right)\sin(\alpha t)$	$\operatorname{Re} s > \lvert\operatorname{Im}\alpha\rvert$
53		$\frac{s^3+as^2+bs+c}{s^2(s^2+\alpha^2)}$	$\frac{b}{\alpha^2}+\frac{c}{\alpha^2}t+\left(1-\frac{b}{\alpha^2}\right)\cos(\alpha t)+\left(\frac{a}{\alpha}-\frac{c}{\alpha^3}\right)\sin(\alpha t)$	$\operatorname{Re} s > \lvert\operatorname{Im}\alpha\rvert$
54	BM	$\frac{1}{s^2(s^2-\alpha^2)}$	$\frac{\sinh(\alpha t)}{\alpha^3}-\frac{t}{\alpha^2}$	$\operatorname{Re} s > \lvert\operatorname{Re}\alpha\rvert$
55		$\frac{s+a}{s^2(s^2-\alpha^2)}$	$\frac{\cosh(\alpha t)}{\alpha^2}+\frac{a\sinh(\alpha t)}{\alpha^3}-\frac{1}{\alpha^2}-\frac{at}{\alpha^2}$	$\operatorname{Re} s > \lvert\operatorname{Re}\alpha\rvert$
56		$\frac{s^2+as+b}{s^2(s^2-\alpha^2)}$	$\frac{a}{\alpha^2}\cosh(\alpha t)+\left(\frac{1}{\alpha}+\frac{b}{\alpha^3}\right)\sinh(\alpha t)-\frac{a}{\alpha^2}-\frac{bt}{\alpha^2}$	$\operatorname{Re} s > \lvert\operatorname{Re}\alpha\rvert$
57		$\frac{s^3+as^2+bs+c}{s^2(s^2-\alpha^2)}$	$\left(1+\frac{b}{\alpha^2}\right)\cosh(\alpha t)+\left(\frac{a}{\alpha}+\frac{c}{\alpha^3}\right)\sinh(\alpha t)$ $-\frac{b}{\alpha^2}-\frac{ct}{\alpha^2}$	$\operatorname{Re} s > \lvert\operatorname{Re}\alpha\rvert$
58	BO	$\frac{1}{s^2(s^2+\alpha s+\beta)}$ $=\frac{\beta-\alpha s}{\beta^2s^2}+\frac{\alpha s+\alpha^2-\beta}{\beta^2(s^2+\alpha s+\beta)}$	See under B and O.	$\operatorname{Re} s > \operatorname{Max} o, -\frac{1}{2}\operatorname{Re}\alpha$ $+\lvert\operatorname{Im}(\beta-\frac{\alpha^2}{4})^{\frac{1}{2}}\rvert$
59		$\frac{s+a}{s^2(s^2+\alpha s+\beta)}$ $=\frac{(\beta-\alpha a)s+\beta a}{\beta^2s^2}+\frac{(\alpha a-\beta)s+(\alpha^2a-\beta a-\alpha\beta)}{\beta^2(s^2+\alpha s+\beta)}$	See under B and O	$\operatorname{Re} s > \operatorname{Max} o, -\frac{1}{2}\operatorname{Re}\alpha$ $+\lvert\operatorname{Im}(\beta-\frac{\alpha^2}{4})^{\frac{1}{2}}\rvert$
60		$\frac{s^2+as+b}{s^2(s^2+\alpha s+\beta)}$ $=\frac{(\beta a-\alpha b)s+\beta b}{\beta^2s^2}+\frac{(\alpha b-\beta a)s+(\beta^2-\alpha\beta a+\alpha^2b-\beta b)}{\beta^2(s^2+\alpha s+\beta)}$	See under B and O	$\operatorname{Re} s > \operatorname{Max} o, -\frac{1}{2}\operatorname{Re}\alpha$ $+\lvert\operatorname{Im}(\beta-\frac{\alpha^2}{4})^{\frac{1}{2}}\rvert$

1(Contd.)

		g(s)	f(t)	
61	BO	$\frac{s^3+as^2+bs+c}{s^2(s^2+\alpha s+\beta)}$ $= \frac{(\beta b-\alpha c)s+\beta c}{\beta^2 s^2} + \frac{(\beta^2-\beta b+\alpha c)s+(\beta^2 a-\alpha\beta b+\alpha^2 c-\beta c)}{\beta^2(s^2+\alpha s+\beta)}$	See under B and O	Re s > Max o, $-\frac{1}{2}$Re α $+ \lvert \mathrm{Im}(\beta-\frac{\alpha^2}{4})^{\frac{1}{2}} \rvert$
62	C	$\frac{1}{s^3}$	$\frac{t^2}{2}$	Re s > o
63		$\frac{s+a}{s^3}$	$t+\frac{at^2}{2}$	Re s > o
64		$\frac{s^2+as+b}{s^3}$	$1+at+\frac{bt^2}{2}$	Re s > o
65	CF	$\frac{1}{s^2(s+\alpha)}$	$\frac{1}{\alpha^3}(1-e^{-\alpha t})-\frac{t}{\alpha^2}+\frac{t^2}{2\alpha}$	Re s > Max o, − Re α
66		$\frac{s+a}{s^3(s+\alpha)}$	$\frac{\alpha-a}{\alpha^2}t+\frac{a}{2\alpha}t^2-\frac{\alpha-a}{\alpha^3}(1-e^{-\alpha t})$	Re s > Max o, − Re α
67		$\frac{s^2+as+b}{s^3(s+\alpha)}$	$\frac{a\alpha-b}{\alpha^2}t+\frac{b}{2\alpha}t^2+\frac{\alpha^2-a\alpha+b}{\alpha^3}(1-e^{-\alpha t})$	Re s > Max o, − Re α
68		$\frac{s^3+as^2+bs+c}{s^3(s+\alpha)}$	$\frac{a\alpha^2-b\alpha+c}{\alpha^3}+\frac{b\alpha-c}{\alpha^2}t+\frac{c}{2\alpha}t^2+\frac{\alpha^3-a\alpha^2+b\alpha-c}{\alpha^3}e^{-\alpha t}$	Re s > Max o, − Re α
69	CKK	$\frac{3s^2+\alpha^2}{s^3(s^2+\alpha^2)^2}$	$\left(\frac{\pi t^3}{2\alpha^3}\right)^{\frac{1}{2}} H_{\frac{3}{2}}(\alpha t)$	Re s > |Im α|
70	CMM	$\frac{3s^2-\alpha^2}{s^3(s^2-\alpha^2)^2}$	$\left(\frac{\pi t^3}{2\alpha^3}\right)^{\frac{1}{2}} L_{\frac{3}{2}}(\alpha t)$	Re s > |Re α|
71	D	$\frac{1}{s^4}$	$\frac{t^3}{6}$	Re s > o

1(Contd.)

		g(s)	f(t)	
72	D	$\frac{s+a}{s^4}$	$\frac{t^2}{2}+\frac{at^3}{6}$	Re s > o
73		$\frac{s^2+as+b}{s^4}$	$t+\frac{at^2}{2}+\frac{bt^3}{6}$	Re s > o
74		$\frac{s^3+as^2+bs+c}{s^4}$	$1+at+\frac{bt^2}{2}+\frac{ct^3}{6}$	Re s > o
75	E	$\frac{1}{s^5}$	$\frac{t^4}{24}$	Re s > o
76	F	$\frac{1}{s+\alpha}$	$e^{-\alpha t}$	Re s > − Re α
77	FF	$\frac{1}{(s+\alpha)(s+\beta)}$	$\frac{e^{-\alpha t}-e^{-\beta t}}{\beta-\alpha}$	Re s > Max − Re α, − Re β
78		$\frac{s+a}{(s+\alpha)(s+\beta)}$	$\frac{\alpha-a}{\alpha-\beta}e^{-\alpha t}+\frac{\beta-a}{\beta-\alpha}e^{-\beta t}$	Re s > Max − Re α, − Re β
79	FFF	$\frac{1}{(s+\alpha)(s+\beta)(s+\gamma)}$	$\frac{e^{-\alpha t}}{(\beta-\alpha)(\gamma-\alpha)}+\frac{e^{-\beta t}}{(\alpha-\beta)(\gamma-\beta)}+\frac{e^{-\gamma t}}{(\alpha-\gamma)(\beta-\gamma)}$	Re s > Max − Re α, − Re β, − Re γ
80		$\frac{s+a}{(s+\alpha)(s+\beta)(s+\gamma)}$	$\frac{a-\alpha}{(\beta-\alpha)(\gamma-\alpha)}e^{-\alpha t}+\frac{a-\beta}{(\alpha-\beta)(\gamma-\beta)}e^{-\beta t}$ $+\frac{a-\gamma}{(\alpha-\gamma)(\beta-\gamma)}e^{-\gamma t}$	Re s > Max − Re α, − Re β, − Re γ
81		$\frac{s^2+as+b}{(s+\alpha)(s+\beta)(s+\gamma)}$	$\frac{\alpha^2-a\alpha+b}{(\alpha-\beta)(\alpha-\gamma)}e^{-\alpha t}+\frac{\beta^2-a\beta+b}{(\beta-\alpha)(\beta-\gamma)}e^{-\beta t}$ $+\frac{\gamma^2-a\gamma+b}{(\gamma-\alpha)(\gamma-\beta)}e^{-\gamma t}$	Re s > Max − Re α, − Re β, − Re γ

$\alpha = 1$ $b = 1$
$\beta = 1$
$\gamma = 1$ $a = 0$

1(Contd.)

		$g(s)$	$f(t)$	
82	FFFF	$\frac{1}{(s+\alpha)(s+\beta)(s+\gamma)(s+\delta)}$	$-\frac{e^{-\alpha t}}{(\alpha-\beta)(\alpha-\gamma)(\alpha-\delta)}-\frac{e^{-\beta t}}{(\beta-\alpha)(\beta-\gamma)(\beta-\delta)}$ $-\frac{e^{-\gamma t}}{(\gamma-\alpha)(\gamma-\beta)(\gamma-\delta)}-\frac{e^{-\delta t}}{(\delta-\alpha)(\delta-\beta)(\delta-\gamma)}$	Re s > Max − Re α, − Re β, − Re γ, − Re δ
83		$\frac{s+a}{(s+\alpha)(s+\beta)(s+\gamma)(s+\delta)}$	$-\frac{\alpha-a}{(\beta-\alpha)(\gamma-\alpha)(\delta-\alpha)}e^{-\alpha t}-\frac{\beta-a}{(\alpha-\beta)(\gamma-\beta)(\delta-\beta)}e^{-\beta t}$ $-\frac{\gamma-a}{(\alpha-\gamma)(\beta-\gamma)(\delta-\gamma)}e^{-\gamma t}-\frac{\delta-a}{(\alpha-\delta)(\beta-\delta)(\gamma-\delta)}e^{-\delta t}$	Re s > Max − Re α, − Re β, − Re γ, − Re δ
84		$\frac{s^2+as+b}{(s+\alpha)(s+\beta)(s+\gamma)(s+\delta)}$	$-\frac{\alpha^2-a\alpha+b}{(\alpha-\beta)(\alpha-\gamma)(\alpha-\delta)}e^{-\alpha t}-\frac{\beta^2-a\beta+b}{(\beta-\alpha)(\beta-\gamma)(\beta-\delta)}e^{-\beta t}$ $-\frac{\gamma^2-a\gamma+b}{(\gamma-\alpha)(\gamma-\beta)(\gamma-\delta)}e^{-\gamma t}-\frac{\delta^2-a\delta+b}{(\delta-\alpha)(\delta-\beta)(\delta-\gamma)}e^{-\delta t}$	Re s > Max − Re α, − Re β, − Re γ, − Re δ
85		$\frac{s^3+as^2+bs+c}{(s+\alpha)(s+\beta)(s+\gamma)(s+\delta)}$	$-\frac{\alpha^3-a\alpha^2+b\alpha-c}{(\beta-\alpha)(\gamma-\alpha)(\delta-\alpha)}e^{-\alpha t}-\frac{\beta^3-a\beta^2+b\beta-c}{(\alpha-\beta)(\gamma-\beta)(\delta-\beta)}e^{-\beta t}$ $-\frac{\gamma^3-a\gamma^2+b\gamma-c}{(\alpha-\gamma)(\beta-\gamma)(\delta-\gamma)}e^{-\gamma t}-\frac{\delta^3-a\delta^2+b\delta-c}{(\alpha-\delta)(\beta-\delta)(\gamma-\delta)}e^{-\delta t}$	Re s > Max − Re α, − Re β, − Re γ, − Re δ
86	FG	$\frac{1}{(s+\alpha)^2(s+\beta)}$	$\frac{1}{(\beta-\alpha)^2}e^{-\beta t}+\frac{(\beta-\alpha)t-1}{(\beta-\alpha)^2}e^{-\alpha t}$	Re s > Max − Re α, − Re β
37		$\frac{s+a}{(s+\alpha)^2(s+\beta)}$	$\frac{a-\beta}{(\alpha-\beta)^2}e^{-\beta t}+\left[\frac{a-\alpha}{\beta-\alpha}t+\frac{\beta-a}{(\beta-\alpha)^2}\right]e^{-\alpha t}$	Re s > Max − Re α, − Re β
38		$\frac{s^2+as+b}{(s+\alpha)^2(s+\beta)}$	$\left[\frac{\alpha(\alpha-2\beta)+a\beta-b}{(\alpha-\beta)^2}-\frac{\alpha^2-a\alpha+b}{\alpha-\beta}t\right]e^{-\alpha t}$ $+\frac{\beta^2-a\beta+b}{(\alpha-\beta)^2}e^{-\beta t}$	Re s > Max − Re α, − Re β

1(Contd.)

		$g(s)$	$f(t)$	
89	FH	$\frac{1}{(s+\alpha)(s+\beta)^3}$	$\frac{[1-(\alpha-\beta)t+\frac{1}{2!}(\alpha-\beta)^2t^2]e^{-\beta t}-e^{-\alpha t}}{(\alpha-\beta)^3}$	Re s > Max − Re α, − Re β
90		$\frac{s+a}{(s+\alpha)(s+\beta)^3}$	$\frac{\alpha-a}{(\alpha-\beta)^3}(e^{-\alpha t}-e^{-\beta t})+\frac{e^{-\beta t}}{(\alpha-\beta)^3}\left[(\alpha-\beta)(\alpha-a)t+\frac{1}{2}\frac{a-\beta}{\alpha-\beta}t^2\right]$	Re s > Max − Re α, − Re β
91		$\frac{s^2+as+b}{(s+\alpha)(s+\beta)^3}$	$\frac{\alpha^2-a\alpha+b}{(\beta-\alpha)^3}e^{-\alpha t}-\frac{\alpha^2-a\alpha+b}{(\beta-\alpha)^3}e^{-\beta t}$ $+\frac{\beta^2-2\alpha\beta+a\alpha-b}{(\alpha-\beta)^2}te^{-\beta t}$ $+\frac{\beta^2-a\beta+b}{2(\alpha-\beta)}t^2e^{-\beta t}$	Re s > Max − Re α, − Re β
92		$\frac{s^3+as^2+bs+c}{(s+\alpha)(s+\beta)^3}$	$\frac{\alpha^3-a\alpha^2+b\alpha-c}{(\alpha-\beta)^3}e^{-\alpha t}$ $+\frac{3\alpha\beta^2-3\alpha^2\beta-\beta^3+a\alpha^2-\alpha b+c}{(\alpha-\beta)^3}e^{-\beta t}$ $+\frac{(a+3\alpha)\beta^2-2\beta^3-2a\alpha\beta+\alpha b-c}{(\alpha-\beta)^2}te^{-\beta t}$ $+\frac{a\beta^2-\beta^3-b\beta+c}{2(\alpha-\beta)}t^2e^{-\beta t}$	Re s > Max − Re α, − Re β
93	FK	$\frac{1}{(s+\alpha)(s^2+\beta^2)}$	$\frac{1}{\alpha^2+\beta^2}e^{-\alpha t}+\frac{\sin(\beta t-\tan^{-1}\frac{\beta}{\alpha})}{\beta(\alpha^2+\beta^2)^{\frac{1}{2}}}$	Re s > Max − Re α, |Im β|
94		$\frac{s+a}{(s+\alpha)(s^2+\beta^2)}$	$\frac{a-\alpha}{\alpha^2+\beta^2}e^{-\alpha t}$ $+\frac{(a^2+\beta^2)^{\frac{1}{2}}}{\beta(\alpha^2+\beta^2)^{\frac{1}{2}}}\sin(\beta t+\tan^{-1}\frac{\beta}{a}-\tan^{-1}\frac{\beta}{\alpha})$	Re s > Max − Re α, |Im β|

	$g(s)$	$f(t)$	
1(Contd.)			
95 FK	$\frac{s^2+as+b}{(s+\alpha)(s^2+\beta^2)}$	$\frac{\alpha^2-a\alpha+b}{\alpha^2+\beta^2}e^{-\alpha t}+\left[\frac{(\frac{b}{\beta}-\beta)^2+a^2}{\alpha^2+b^2}\right]^{\frac{1}{2}}\cdot \sin(\beta t+\tan^{-1}\frac{a\beta}{b-\beta^2}-\tan^{-1}(\frac{\beta}{\alpha}))$	Re s > Max − Re α, |Im β|
96 FM	$\frac{1}{(s+\alpha)(s^2-\beta^2)}$	$\frac{-e^{-\alpha t}+\cosh(\beta t)-\frac{\alpha}{\beta}\sinh(\beta t)}{\beta^2-\alpha^2}$	Re s > Max − Re α, |Re β|
97	$\frac{s+a}{(s+\alpha)(s^2-\beta^2)}$	$\frac{(\alpha-a)e^{-\alpha t}-(\alpha-a)\cosh(\beta t)+(\beta-\frac{a\alpha}{\beta})\sinh(\beta t)}{\beta^2-\alpha^2}$	Re s > Max − Re α, |Re β|
98	$\frac{s^2+as+b}{(s+\alpha)(s^2-\beta^2)}$	$\frac{1}{\alpha^2-\beta^2}\Big[(\alpha^2-a\alpha+b)e^{-\alpha t}-(\beta^2-a\alpha+b)\cosh(\beta t)+(\alpha\beta-a\beta+\frac{b\alpha}{\beta})\sinh(\beta t)\Big]$	Re s > Max − Re α, |Re β|
99 FO	$\frac{1}{(s+\alpha)(s^2+\beta s+\gamma)}$ $=\frac{1}{(\alpha^2-\alpha\beta+\gamma)(s+\alpha)}+\frac{\alpha-\beta-s}{(\alpha^2-\alpha\beta+\gamma)(s^2+\beta s+\gamma)}$	See under F and O	Re s > Max − Re α, $-\frac{1}{2}\text{Re}\,\beta+\lvert\text{Im}(\gamma-\frac{\beta^2}{4})^{\frac{1}{2}}\rvert$
100	$\frac{s+a}{(s+\alpha)(s^2+\beta s+\gamma)}$ $=\frac{a-\alpha}{(\alpha^2-\alpha\beta+\gamma)(s+\alpha)}+\frac{(\alpha-a)s+a\alpha-a\beta+\gamma}{(\alpha^2-\alpha\beta+\gamma)(s^2+\beta s+\gamma)}$	See under F and O	Re s > Max − Re α, $-\frac{1}{2}\text{Re}\,\beta+\lvert\text{Im}(\gamma-\frac{\beta^2}{4})^{\frac{1}{2}}\rvert$
101	$\frac{s^2+as+b}{(s+\alpha)(s^2+\beta s+\gamma)}$ $=\frac{\alpha^2-a\alpha+b}{(\alpha^2-\alpha\beta+\gamma)(s+\alpha)}+\frac{(a\alpha-\alpha\beta+\gamma-b)s+b(\alpha-\beta)+\gamma(a-\alpha)}{(\alpha^2-\alpha\beta+\gamma)(s^2+\beta s+\gamma)}$	See under F and O	Re s > Max − Re α, $-\frac{1}{2}\text{Re}\,\beta+\lvert\text{Im}(\gamma-\frac{\beta^2}{4})^{\frac{1}{2}}\rvert$

	$g(s)$	$f(t)$	
1(Contd.)			
102 FP	$\frac{1}{(s+\alpha)(s^3+\beta^3)}$	$\frac{1}{\beta^3-\alpha^3}e^{-\alpha t}+\frac{1}{3\beta^2(\alpha-\beta)}e^{-\beta t}+\frac{2\beta^2-\alpha\beta-\alpha^2}{3\beta^2(\alpha^3-\beta^3)}e^{\frac{\beta t}{2}}\cos\frac{3^{\frac{1}{2}}\beta t}{2}+\frac{\alpha}{3^{\frac{1}{2}}\beta^2(\alpha^2+\alpha\beta+\beta^2)}e^{\frac{\beta t}{2}}\sin\frac{3^{\frac{1}{2}}\beta t}{2}$	Re s > Max − Re α, − Re β, $\frac{1}{2}\text{Re}\,\beta+\frac{3^{\frac{1}{2}}}{2}\lvert\text{Im}\,\beta\rvert$
103	$\frac{s+a}{(s+\alpha)(s^3+\beta^3)}$	$\frac{\alpha-a}{\alpha^3-\beta^3}e^{-\alpha t}+\frac{a-\beta}{3\beta^2(\alpha-\beta)}e^{-\beta t}+\frac{\beta(\alpha-\beta)-a(2\beta+\alpha)}{3\beta^2(\alpha^2+\alpha\beta+\beta^2)}e^{\frac{\beta t}{2}}\cos\frac{3^{\frac{1}{2}}\beta t}{2}+\frac{a\alpha+\alpha\beta+\beta^2}{3^{\frac{1}{2}}\beta^2(\alpha^2+\alpha\beta+\beta^2)}e^{\frac{\beta t}{2}}\sin\frac{3^{\frac{1}{2}}\beta t}{2}$	Re s > Max − Re α, − Re β, $\frac{1}{2}\text{Re}\,\beta+\frac{3^{\frac{1}{2}}}{2}\lvert\text{Im}\,\beta\rvert$
104	$\frac{s^2+as+b}{(s+\alpha)(s^3+\beta^3)}$ $=\frac{-\alpha^2+\alpha a-b}{(\alpha^3-\beta^3)(s+\alpha)}+\frac{(\alpha^2-\alpha a+b)s^2+(-\beta^3+\alpha^2a-\alpha b)s+(\alpha\beta^3-\beta^3a+\alpha^2b)}{(\alpha^3-\beta^3)(s^3+\beta^3)}$	See under F and P	Re s > Max − Re α, − Re β, $\frac{1}{2}\text{Re}\,\beta+\frac{3^{\frac{1}{2}}}{2}\lvert\text{Im}\,\beta\rvert$
105	$\frac{s^3+as^2+bs+c}{(s+\alpha)(s^3+\beta^3)}$ $=\frac{\alpha^3-\alpha^2a+\alpha b-c}{(\alpha^3-\beta^3)(s+\alpha)}+\frac{(-\beta^3+\alpha^2a-\alpha b+c)s^2+(\alpha\beta^3-\beta^3a+\alpha^2b-\alpha c)s+(-\alpha^2\beta^3+\alpha\beta^3a-\beta^3b+\alpha^2c)}{(\alpha^3-\beta^3)(s^3+\beta^3)}$	See under F and P	Re s > Max − Re α, − Re β, $\frac{1}{2}\text{Re}\,\beta+\frac{3^{\frac{1}{2}}}{2}\lvert\text{Im}\,\beta\rvert$
106 G	$\frac{1}{(s+\alpha)^2}$	$t\,e^{-\alpha t}$	Re s > − Re α
107	$\frac{s+a}{(s+\alpha)^2}$	$[1+(a-\alpha)t]e^{-\alpha t}$	Re s > − Re α

1(Contd.)

	$g(s)$	$f(t)$	
108 GK	$\frac{1}{(s+\alpha)^2(s^2+\beta^2)}$	$\frac{2\alpha}{(\alpha^2+\beta^2)^2}e^{-\alpha t}+\frac{t}{\alpha^2+\beta^2}e^{-\alpha t}$	Re s > Max - Re α, $\lvert \mathrm{Im}\,\beta \rvert$
		$-\frac{2\alpha}{(\alpha^2+\beta^2)^2}\cos(\beta t)+\frac{\alpha^2-\beta^2}{\beta(\alpha^2+\beta^2)^2}\sin(\beta t)$	
109	$\frac{s+a}{(s+\alpha)^2(s^2+\beta^2)}$	$-\frac{\alpha^2-\beta^2-2\alpha a}{(\alpha^2+\beta^2)^2}e^{-\alpha t}-\frac{\alpha-a}{\alpha^2+\beta^2}te^{-\alpha t}$	Re s > Max - Re α, $\lvert \mathrm{Im}\,\beta \rvert$
		$+\frac{\alpha^2-\beta^2-2\alpha a}{(\alpha^2+\beta^2)^2}\cos(\beta t)+\frac{2\alpha\beta^2+a(\alpha^2-\beta^2)}{\beta(\alpha^2+\beta^2)^2}\sin(\beta t)$	
110	$\frac{s^2+as+b}{(s+\alpha)^2(s^2+\beta^2)}$	$-Ae^{-\alpha t}+Bte^{-\alpha t}+A\cos(\beta t)+C\sin(\beta t)$	Re s > Max - Re α, $\lvert \mathrm{Im}\,\beta \rvert$
		where $A=\frac{(\alpha^2-\beta^2)a+2\alpha(\beta^2-b)}{(\alpha^2+\beta^2)^2}$	
		$B=\frac{\alpha^2-\alpha a+b}{\alpha^2+\beta^2}$	
		$C=\frac{2\alpha\beta^2a-(\alpha^2-\beta^2)(\beta^2-b)}{\beta(\alpha^2+\beta^2)^2}$	
111	$\frac{s^3+as^2+bs+c}{(s+\alpha)^2(s^2+\beta^2)}$	$Ae^{-\alpha t}+Bte^{-\alpha t}+C\cos(\beta t)+D\sin(\beta t)$	Re s > Max - Re α, $\lvert \mathrm{Im}\,\beta \rvert$
		where $A=\frac{\alpha^2(\alpha^2+3\beta^2)-(\alpha^2-\beta^2)b-2\alpha(\beta^2a-c)}{(\alpha^2+\beta^2)^2}$	
		$B=\frac{-\alpha^3+\alpha^2a-\alpha b+c}{\alpha^2+\beta^2}$	
		$C=\frac{(\alpha^2-\beta^2)(b-\beta^2)+2\alpha(\beta^2a-c)}{(\alpha^2+\beta^2)^2}$	
		$D=\frac{2\alpha\beta^2(b-\beta^2)-(\alpha^2-\beta^2)(\beta^2a-c)}{\beta(\alpha^2+\beta^2)^2}$	
112 GM	$\frac{1}{(s+\alpha)^2(s^2-\beta^2)}$	$\frac{2\alpha}{(\alpha^2-\beta^2)^2}e^{-\alpha t}+\frac{t}{\alpha^2-\beta^2}e^{-\alpha t}-\frac{2\alpha}{(\alpha^2-\beta^2)^2}\cosh(\beta t)$	Re s > Max - Re α, $\lvert \mathrm{Re}\,\beta \rvert$
		$+\frac{\alpha^2+\beta^2}{\beta(\alpha^2-\beta^2)^2}\sinh(\beta t)$	

1(Contd.)

	$g(s)$	$f(t)$	
113 GM	$\frac{s+a}{(s+\alpha)^2(s^2-\beta^2)}$	$\frac{-\alpha^2-\beta^2+2\alpha a}{(\alpha^2-\beta^2)^2}e^{-\alpha t}+\frac{a-\alpha}{\alpha^2-\beta^2}te^{-\alpha t}$	Re s > Max - Re α, $\lvert \mathrm{Re}\,\beta \rvert$
		$+\frac{\alpha^2+\beta^2-2\alpha a}{(\alpha^2-\beta^2)^2}\cosh(\beta t)+\frac{-2\alpha\beta^2+(\alpha^2+\beta^2)a}{\beta(\alpha^2-\beta^2)^2}\sinh(\beta t)$	
114	$\frac{s^2+as+b}{(s+\alpha)^2(s^2-\beta^2)}$	$Ae^{-\alpha t}+Bte^{-\alpha t}-A\cosh(\beta t)+C\sinh(\beta t)$	Re s > Max - Re α, $\lvert \mathrm{Re}\,\beta \rvert$
		where $A=\frac{-(\alpha^2+\beta^2)a+2\alpha(\beta^2+b)}{(\alpha^2-\beta^2)^2}$	
		$B=\frac{\alpha^2-\alpha a+b}{\alpha^2-\beta^2}$	
		$C=\frac{-2\alpha\beta^2a+(\alpha^2+\beta^2)(\beta^2+b)}{\beta(\alpha^2-\beta^2)^2}$	
115	$\frac{s^3+as^2+bs+c}{(s+\alpha)^2(s^2-\beta^2)}$	$Ae^{-\alpha t}+Bte^{-\alpha t}+C\cosh(\beta t)+D\sinh(\beta t)$	Re s > Max - Re α, $\lvert \mathrm{Re}\,\beta \rvert$
		where $A=\frac{\alpha^2(\alpha^2-3\beta^2)-(\alpha^2+\beta^2)b+2\alpha(\beta^2a+c)}{(\alpha^2-\beta^2)^2}$	
		$B=\frac{-\alpha^3+\alpha^2a-\alpha b+c}{\alpha^2-\beta^2}$	
		$C=\frac{(\alpha^2+\beta^2)(b+\beta^2)-2\alpha(\beta^2a+c)}{(\alpha^2-\beta^2)^2}$	
		$D=\frac{-2\alpha\beta^2(b+\beta^2)+(\alpha^2+\beta^2)(\beta^2a+c)}{\beta(\alpha^2-\beta^2)^2}$	
116 H	$\frac{1}{(s+\alpha)^3}$	$\frac{t^2}{2}e^{-\alpha t}$	Re s > - Re α
117	$\frac{s+a}{(s+\alpha)^3}$	$t(1+\frac{a-\alpha}{2}t)e^{-\alpha t}$	Re s > - Re α
118	$\frac{s^2+as+b}{(s+\alpha)^3}$ $a=0$ $x=1$ $b=1$	$[1+(a-2\alpha)t+\frac{1}{2}(\alpha^2-a\alpha+b)t^2]e^{-\alpha t}$	Re s > - Re α

1(Contd.)		g(s)	f(t)	
119	I	$\frac{1}{(s+\alpha)^4}$	$\frac{t^3 e^{-\alpha t}}{6}$	Re s > − Re α
120		$\frac{s+a}{(s+\alpha)^4}$	$t^2\left(\frac{1}{2}+\frac{a-\alpha}{6}t\right)e^{-\alpha t}$	Re s > − Re α
121		$\frac{s^2+as+b}{(s+\alpha)^4}$	$t\left[1+(\frac{a}{2}-\alpha)t+\frac{b+\alpha^2-a\alpha}{6}t^2\right]e^{-\alpha t}$	Re s > − Re α
122		$\frac{s^3+as^2+bs+c}{(s+\alpha)^4}$	$\left[1+(a-3\alpha)t+\frac{b-2a\alpha+3\alpha^2}{2}t^2+\frac{c-b\alpha+a\alpha^2-\alpha^3}{6}t^3\right]e^{-\alpha t}$	Re s > − Re α
123	J	$\frac{1}{(s+\alpha)^5}$	$\frac{t^4 e^{-\alpha t}}{24}$	Re s > − Re α
124	K	$\frac{1}{s^2+\alpha^2}$	$\frac{\sin(\alpha t)}{\alpha}$ $=\left(\frac{\pi t}{2\alpha}\right)^{\frac{1}{2}} H_{\frac{1}{2}}(\alpha t)$	Re s > |Im α|
125		$\frac{s}{s^2+\alpha^2}$	$\cos(\alpha t)$	Re s > |Im α|
126		$\frac{s+a}{s^2+\alpha^2}$	$\cos(\alpha t)+\frac{a}{\alpha}\sin(\alpha t)$	Re s > |Im α|
127		$\frac{s\sin b+\alpha\cos b}{s^2+\alpha^2}$	$\sin(\alpha t+b)$	Re s > |Im α|
128		$\frac{s\cos b-\alpha\sin b}{s^2+\alpha^2}$	$\cos(\alpha t+b)$	Re s > |Im α|
129	KK	$\frac{1}{(s^2+\alpha^2)(s^2+\beta^2)}$	$\frac{\alpha\sin(\beta t)-\beta\sin(\alpha t)}{\alpha\beta(\alpha^2-\beta^2)}$	Re s > Max |Im α|, |Im β|

1(Contd.)		g(s)	f(t)	
130	KK	$\frac{s}{(s^2+\alpha^2)(s^2+\beta^2)}$	$\frac{2}{\alpha^2-\beta^2}\sin\left(\frac{\alpha+\beta}{2}t\right)\sin\left(\frac{\alpha-\beta}{2}t\right)$ $=\frac{\cos(\alpha t)-\cos(\beta t)}{\beta^2-\alpha^2}$	Re s > Max |Im α|, |Im β|
131		$\frac{s+a}{(s^2+\alpha^2)(s^2+\beta^2)}$	$\frac{1}{\beta^2-\alpha^2}\left[\left(1+\frac{a^2}{\alpha^2}\right)^{\frac{1}{2}}\sin(\alpha t+\tan^{-1}\frac{\alpha}{a}) - \left(1+\frac{a^2}{\beta^2}\right)^{\frac{1}{2}}\sin(\beta t+\tan^{-1}\frac{\beta}{a})\right]$	Re s > Max |Im α|, |Im β|
132		$\frac{s^2-\alpha\beta}{(s^2+\alpha^2)(s^2+\beta^2)}$	$\frac{2}{\alpha-\beta}[\sin(\alpha t)-\sin(\beta t)]$	Re s > Max |Im α|, |Im β|
133		$\frac{s^2+as+b}{(s^2+\alpha^2)(s^2+\beta^2)}$	$\frac{a}{\beta^2-\alpha^2}\left[\left\{1+\frac{(b-\alpha^2)^2}{a^2\alpha^2}\right\}^{\frac{1}{2}}\sin(\alpha t+\tan^{-1}\frac{a\alpha}{b-\alpha^2}) - \left\{1+\frac{(b-\beta^2)^2}{a^2\beta^2}\right\}^{\frac{1}{2}}\sin(\beta t+\tan^{-1}\frac{a\beta}{b-\beta^2})\right]$	Re s > Max |Im α|, |Im β|
134		$\frac{s(s^2+7\alpha^2)}{(s^2+\alpha^2)(s^2+9\alpha^2)}$	$\cos^3(\alpha t)$	Re s > 3|Im α|
135		$\frac{s(s^2+\frac{\alpha^2+\beta^2}{2})}{(s^2+\alpha^2)(s^2+\beta^2)}$	$\frac{1}{2}[\cos(\alpha t)+\cos(\beta t)]$	Re s > Max |Im α|, |Im β|
136		$\frac{s^3+as^2+bs+c}{(s^2+\alpha^2)(s^2+\beta^2)}$	$\frac{1}{\beta^2-\alpha^2}[(b-\alpha^2)\cos(\alpha t)+(\frac{c}{\alpha}-a\alpha)\cdot\sin(\alpha t)-(b-\beta^2)\cos(\beta t)-(\frac{c}{\beta}-a\beta)\sin(\beta t)]$	Re s > Max |Im α|, |Im β|
137	KM	$\frac{1}{(s^2+\alpha^2)(s^2-\beta^2)}$	$\frac{\alpha\sinh(\beta t)-\beta\sin(\alpha t)}{\alpha\beta(\alpha^2+\beta^2)}$	Re s > Max |Im α|, |Re β|
138		$\frac{s+a}{(s^2+\alpha^2)(s^2-\beta^2)}$	$\frac{\cosh(\beta t)-\cos(\alpha t)}{\alpha^2+\beta^2}+\frac{a\alpha\sinh(\beta t)-a\beta\sin(\alpha t)}{\alpha\beta(\alpha^2+\beta^2)}$	Re s > Max |Im α|, |Re β|

1(Contd.)		$g(s)$	$f(t)$	
139	KM	$\frac{s^2+as+b}{(s^2+\alpha^2)(s^2-\beta^2)}$	$\frac{a}{\alpha^2+\beta^2}[\cosh(\beta t)-\cos(\alpha t)] - \frac{b-\alpha^2}{\alpha(\alpha^2+\beta^2)}\sin(\alpha t) + \frac{b+\beta^2}{\beta(\alpha^2+\beta^2)}\sinh(\beta t)$	Re $s >$ Max $\lvert \mathrm{Im}\,\alpha \rvert, \lvert \mathrm{Re}\,\beta \rvert$
140		$\frac{s^3+as^2+bs+c}{(s^2+\alpha^2)(s^2-\beta^2)}$	$\frac{\alpha^2-b}{\alpha^2+\beta^2}\cos(\alpha t) - \frac{c-a\alpha^2}{\alpha(\alpha^2+\beta^2)}\sin(\alpha t) + \frac{\beta^2+b}{\alpha^2+\beta^2}\cosh(\beta t) + \frac{c+a\beta^2}{\beta(\alpha^2+\beta^2)}\sinh(\beta t)$	Re $s >$ Max $\lvert \mathrm{Im}\,\alpha \rvert, \lvert \mathrm{Re}\,\beta \rvert$
141	L	$\frac{1}{(s^2+\alpha^2)^2}$	$\frac{\sin(\alpha t)-\alpha t\cos(\alpha t)}{2\alpha^3}$	Re $s > \lvert \mathrm{Im}\,\alpha \rvert$
142		$\frac{s+a}{(s^2+\alpha^2)^2}$	$\frac{(\alpha^2 t+a)\sin(\alpha t)-a\alpha t\cos(\alpha t)}{2\alpha^3}$	Re $s > \lvert \mathrm{Im}\,\alpha \rvert$
143		$\frac{s^2+as+b}{(s^2+\alpha^2)^2}$	$\frac{(a\alpha^2 t+b+\alpha^2)\sin(\alpha t)-\alpha(b-\alpha^2)\,t\cos(\alpha t)}{2\alpha^3}$	Re $s > \lvert \mathrm{Im}\,\alpha \rvert$
144		$\frac{s^3+as^2+bs+c}{(s^2+\alpha^2)^2}$	$\left(1-\frac{c-a\alpha^2}{2\alpha^2}t\right)\cos(\alpha t) + \left(\frac{c+a\alpha^2}{2\alpha^3}+\frac{b-\alpha^2}{2\alpha}t\right)\sin(\alpha t)$	Re $s > \lvert \mathrm{Im}\,\alpha \rvert$
145	M	$\frac{1}{s^2-\alpha^2}$	$\frac{\sinh(\alpha t)}{\alpha} = \left(\frac{\pi t}{2\alpha}\right)^{\frac{1}{2}} L_{-\frac{1}{2}}(\alpha t)$	Re $s > \lvert \mathrm{Re}\,\alpha \rvert$
146		$\frac{s}{s^2-\alpha^2}$	$\cosh(\alpha t)$	Re $s > \lvert \mathrm{Re}\,\alpha \rvert$
147		$\frac{s+a}{s^2-\alpha^2}$	$\cosh(\alpha t)+\frac{a}{\alpha}\sinh(\alpha t)$	Re $s > \lvert \mathrm{Re}\,\alpha \rvert$

1(Contd.)		$g(s)$	$f(t)$	
148	N	$\frac{1}{(s^2-\alpha^2)^2}$	$\frac{\alpha t\cosh(\alpha t)-\sinh(\alpha t)}{2\alpha^3}$	Re $s > \lvert \mathrm{Re}\,\alpha \rvert$
149		$\frac{s+a}{(s^2-\alpha^2)^2}$	$\frac{(\alpha^2 t-a)\sinh(\alpha t)+a\alpha t\cosh(\alpha t)}{2\alpha^3}$	Re $s > \lvert \mathrm{Re}\,\alpha \rvert$
150		$\frac{s^2+as+b}{(s^2-\alpha^2)^2}$	$\frac{(\alpha^2 a t+\alpha^2-b)\sinh(\alpha t)+(\alpha^2+b)\alpha t\cosh(\alpha t)}{2\alpha^3}$	Re $s > \lvert \mathrm{Re}\,\alpha \rvert$
151		$\frac{s^3+as^2+bs+c}{(s^2-\alpha^2)^2}$	$\frac{1}{2\alpha^3}[\alpha^2(\alpha^2+b)t+a\alpha^2-c]\sinh(\alpha t) + \frac{1}{2\alpha^2}[2\alpha^2+(a\alpha^2+c)t]\cosh(\alpha t)$	Re $s > \lvert \mathrm{Re}\,\alpha \rvert$
152	O	$\frac{1}{s^2+\alpha s+\beta}$	$\frac{e^{-r_1 t}-e^{-r_2 t}}{r_2-r_1}$ if $\alpha^2 \neq 4\beta$	Re $s >$ Max $-$ Re r_1, $-$ Re r_2

where $-r_1$ and $-r_2$ are the roots of $s^2+\alpha s+\beta = 0$

$$t e^{-\frac{\alpha t}{2}} \text{ if } \alpha^2 = 4\beta$$

If $4\beta-\alpha^2$ is real and positive a convenient form is

$$\frac{e^{-\frac{\alpha t}{2}}\sin[(\beta-\frac{\alpha^2}{4})^{\frac{1}{2}}t]}{(\beta-\frac{\alpha^2}{4})^{\frac{1}{2}}}$$

If $\alpha^2-4\beta$ is real and positive a convenient form is

$$\frac{e^{-\frac{\alpha t}{2}}\sinh[(\frac{\alpha^2}{4}-\beta)^{\frac{1}{2}}t]}{(\frac{\alpha^2}{4}-\beta)^{\frac{1}{2}}}$$

		$g(s)$	$f(t)$	
1(Contd.)				
153	O	$\frac{s+a}{s^2+\alpha s+\beta}$	$\frac{(a-r_1)e^{-r_1 t}-(a-r_2)e^{-r_2 t}}{r_2-r_1}$ if $\alpha^2 \neq 4\beta$ where $-r_1$ and $-r_2$ are the roots of $s^2+\alpha s+\beta=0$ $e^{-\frac{\alpha t}{2}}[1+(a-\frac{\alpha}{2})t]$ if $\alpha^2=4\beta$ If $4\beta-\alpha^2$ is real and positive a convenient form is $\frac{a e^{-\frac{\alpha t}{2}}}{(\beta-\frac{\alpha^2}{4})^{\frac{1}{2}}}\sin[(\beta-\frac{\alpha^2}{4})^{\frac{1}{2}}t]-\frac{\beta^{\frac{1}{2}}e^{-\frac{\alpha t}{2}}}{(\beta-\frac{\alpha^2}{4})^{\frac{1}{2}}}\cdot$ $\sin[(\beta-\frac{\alpha^2}{4})^{\frac{1}{2}}t-\tan^{-1}\frac{2(\beta-\frac{\alpha^2}{4})^{\frac{1}{2}}}{\alpha}]$	Re $s >$ Max $-$ Re r_1, $-$ Re r_2
154	P	$\frac{1}{s^3+\alpha^3}$	$\frac{1}{3\alpha^2}e^{-\alpha t}-\frac{1}{3\alpha^2}e^{\frac{\alpha t}{2}}\cos\left(\frac{3^{\frac{1}{2}}\alpha t}{2}\right)+\frac{1}{3^{\frac{1}{2}}\alpha^2}e^{\frac{\alpha t}{2}}\sin\left(\frac{3^{\frac{1}{2}}\alpha t}{2}\right)$	Re $s >$ Max $-$ Re α, $\frac{1}{2}$(Re $\alpha + 3^{\frac{1}{2}}\lvert$Im $\alpha\rvert$)
155		$\frac{s+a}{s^3+\alpha^3}$	$\frac{a-\alpha}{3\alpha^2}e^{-\alpha t}-\frac{a-\alpha}{3\alpha^2}e^{\frac{\alpha t}{2}}\cos\left(\frac{3^{\frac{1}{2}}\alpha t}{2}\right)+\frac{a+\alpha}{3^{\frac{1}{2}}\alpha}e^{\frac{\alpha t}{2}}\sin\left(\frac{3^{\frac{1}{2}}\alpha t}{2}\right)$	Re $s >$ Max $-$ Re α, $\frac{1}{2}$(Re $\alpha + 3^{\frac{1}{2}}\lvert$Im $\alpha\rvert$)
156		$\frac{s^2+as+b}{s^3+\alpha^3}$	$\frac{\alpha^2-a\alpha+b}{3\alpha^2}e^{-\alpha t}+\frac{2\alpha^2+a\alpha-b}{3\alpha^2}e^{\frac{\alpha t}{2}}\cos\left(\frac{3^{\frac{1}{2}}\alpha t}{2}\right)$ $+\frac{1}{3^{\frac{1}{2}}\alpha^2}(a\alpha+b)e^{\frac{\alpha t}{2}}\sin\left(\frac{3^{\frac{1}{2}}\alpha t}{2}\right)$	Re $s >$ Max $-$ Re α, $\frac{1}{2}$(Re $\alpha + 3^{\frac{1}{2}}\lvert$Im $\alpha\rvert$)
57	Q	$\frac{1}{s^3-\alpha^3}$	$\frac{1}{3\alpha^2}e^{\alpha t}-\frac{1}{3\alpha^2}e^{-\frac{\alpha t}{2}}\cos\left(\frac{3^{\frac{1}{2}}\alpha t}{2}\right)-\frac{1}{3^{\frac{1}{2}}\alpha^2}e^{-\frac{\alpha t}{2}}\sin\left(\frac{3^{\frac{1}{2}}\alpha t}{2}\right)$	Re $s >$ Max Re α, $-\frac{1}{2}$(Re $\alpha - 3^{\frac{1}{2}}\lvert$Im $\alpha\rvert$)
58		$\frac{s+a}{s^3-\alpha^3}$	$\frac{a+\alpha}{3\alpha^2}e^{\alpha t}-\frac{a+\alpha}{3\alpha^2}e^{-\frac{\alpha t}{2}}\cos\left(\frac{3^{\frac{1}{2}}\alpha t}{2}\right)+\frac{a-\alpha}{3^{\frac{1}{2}}\alpha}e^{-\frac{\alpha t}{2}}\sin\left(\frac{3^{\frac{1}{2}}\alpha t}{2}\right)$	Re $s >$ Max Re α, $-\frac{1}{2}$(Re $\alpha - 3^{\frac{1}{2}}\lvert$Im $\alpha\rvert$)

		$g(s)$	$f(t)$	
1(Contd.)				
159	Q	$\frac{s^2+as+b}{s^3-\alpha^3}$	$\frac{\alpha^2+a\alpha+b}{3\alpha^2}e^{\alpha t}+\frac{2\alpha^2-a\alpha-b}{3\alpha^2}e^{-\frac{\alpha t}{2}}\cos\left(\frac{3^{\frac{1}{2}}\alpha t}{2}\right)$ $-\frac{1}{3^{\frac{1}{2}}\alpha^2}(b-a\alpha)e^{-\frac{\alpha t}{2}}\sin\left(\frac{3^{\frac{1}{2}}\alpha t}{2}\right)$	Re $s >$ Max Re α, $-\frac{1}{2}$(Re $\alpha - 3^{\frac{1}{2}}\lvert$Im $\alpha\rvert$)
160	R	$\frac{1}{s^4+\alpha^4}$	$\frac{1}{2^{\frac{1}{2}}\alpha^3}\left[\sin\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)\cosh\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)-\cos\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)\sinh\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)\right]$	Re $s > \frac{1}{2^{\frac{1}{2}}}(\lvert$Re $\alpha\rvert + \lvert$Im $\alpha\rvert)$
161		$\frac{s}{s^4+\alpha^4}$	$\frac{1}{\alpha^2}\sin\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)\sinh\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)$	Re $s > \frac{1}{2^{\frac{1}{2}}}(\lvert$Re $\alpha\rvert + \lvert$Im $\alpha\rvert)$
162		$\frac{s+a}{s^4+\alpha^4}$	$\frac{a}{2^{\frac{1}{2}}\alpha^3}\left[\sin\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)\cosh\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)-\cos\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)\sinh\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)\right]$ $+\frac{1}{\alpha^2}\sin\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)\sinh\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)$	Re $s > \frac{1}{2^{\frac{1}{2}}}(\lvert$Re $\alpha\rvert + \lvert$Im $\alpha\rvert)$
163		$\frac{s^2+2\alpha^2}{s^4+4\alpha^4}$	$\frac{\sin(\alpha t)\cosh(\alpha t)}{\alpha}$	Re $s > \lvert$Re $\alpha\rvert + \lvert$Im $\alpha\rvert$
164		$\frac{s^2-2\alpha^2}{s^4+4\alpha^4}$	$\frac{\cos(\alpha t)\sinh(\alpha t)}{\alpha}$	Re $s > \lvert$Re $\alpha\rvert + \lvert$Im $\alpha\rvert$
165		$\frac{s^2+as+b}{s^4+\alpha^4}$	$\frac{1}{2^{\frac{1}{2}}\alpha^3}\left[(\alpha^2-b)\cos\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)\sinh\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)\right.$ $+(\alpha^2+b)\sin\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)\cosh\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)$ $\left.+2^{\frac{1}{2}}a\alpha\sin\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)\sinh\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)\right]$	Re $s > \frac{1}{2^{\frac{1}{2}}}(\lvert$Re $\alpha\rvert + \lvert$Im $\alpha\rvert)$
166		$\frac{s^3}{s^4+\alpha^4}$	$\cos\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)\cosh\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)$	Re $s > \frac{1}{2^{\frac{1}{2}}}(\lvert$Re $\alpha\rvert + \lvert$Im $\alpha\rvert)$

1(Contd.)		$g(s)$	$f(t)$	
167	R	$\dfrac{s^3+as^2+bs+c}{s^4+\alpha^4}$	$\dfrac{1}{2^{\frac{1}{2}}\alpha^3}\Big[2^{\frac{1}{2}}\alpha^3\cos\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)\cosh\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)$ $+(a\alpha^2-c)\cos\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)\sinh\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)$ $+(a\alpha^2+c)\sin\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)\cosh\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)$ $+2^{\frac{1}{2}}b\alpha\sin\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)\sinh\left(\frac{\alpha t}{2^{\frac{1}{2}}}\right)\Big]$	$\mathrm{Re}\, s > \frac{1}{2^{\frac{1}{2}}}(\lvert \mathrm{Re}\,\alpha\rvert + \lvert \mathrm{Im}\,\alpha\rvert)$
168	S	$\dfrac{1}{s^4-\alpha^4}$	$\dfrac{\sinh(\alpha t)-\sin(\alpha t)}{2\alpha^3}$	$\mathrm{Re}\, s > \mathrm{Max}\,\lvert \mathrm{Re}\,\alpha\rvert, \lvert \mathrm{Im}\,\alpha\rvert$
169		$\dfrac{s+a}{s^4-\alpha^4}$	$\dfrac{\cosh(\alpha t)-\cos(\alpha t)}{2\alpha^2} + a\,\dfrac{\sinh(\alpha t)-\sin(\alpha t)}{2\alpha^3}$	$\mathrm{Re}\, s > \mathrm{Max}\,\lvert \mathrm{Re}\,\alpha\rvert, \lvert \mathrm{Im}\,\alpha\rvert$
170		$\dfrac{s^2+as+b}{s^4-\alpha^4}$	$\dfrac{1}{2\alpha^3}[\alpha a\cosh(\alpha t)+(\alpha^2+b)\sinh(\alpha t)$ $-\alpha a\cos(\alpha t)+(\alpha^2-b)\sin(\alpha t)]$	$\mathrm{Re}\, s > \mathrm{Max}\,\lvert \mathrm{Re}\,\alpha\rvert, \lvert \mathrm{Im}\,\alpha\rvert$
171		$\dfrac{s^3+as^2+bs+c}{s^4-\alpha^4}$	$\dfrac{1}{2\alpha^3}[(\alpha^3-\alpha b)\cos(\alpha t)+(\alpha^2 a-c)\sin(\alpha t)$ $+(\alpha^3+\alpha b)\cosh(\alpha t)+(\alpha^2 a+c)\sinh(\alpha t)]$	$\mathrm{Re}\, s > \mathrm{Max}\,\lvert \mathrm{Re}\,\alpha\rvert, \lvert \mathrm{Im}\,\alpha\rvert$
172		1	$\delta(t)$	$\mathrm{Re}\, s > o$
173		s	$\delta'(t)$	$\mathrm{Re}\, s > o$
174		$\dfrac{1}{s^{n+1}}$	$\dfrac{t^n}{n!}$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s > o$
175		$\dfrac{1}{(s+a)^n}$	$\dfrac{t^{n-1}e^{-at}}{(n-1)!}$	$n=1,2,3,\ldots$ $\mathrm{Re}\, s > -\mathrm{Re}\, a$

1(Contd.)	$g(s)$	$f(t)$	
176	$\dfrac{1}{s(as+1)_n}$	$\dfrac{\left(1-e^{-\frac{t}{a}}\right)^n}{n!}$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s > \mathrm{Max}\, o, -n\,\mathrm{Re}\,\frac{1}{a}$
177	$\dfrac{1}{s(s+a)^n}$	$a^{-n}\left\{1-e^{-at}\left[1+\frac{at}{1!}+\ldots+\frac{(at)^{n-1}}{(n-1)!}\right]\right\}$	$n=1,2,3,\ldots$ $\mathrm{Re}\, s > -\mathrm{Re}\, a$
178	$\dfrac{(s-1)^n}{s^{n+1}}$	$L_n(t)$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s > o$
179	$\dfrac{(s-1)^n}{s^m}$	$\dfrac{t^{m-1}p_n(m-1;t)}{(m-1)!}$	$n=0,1,2,\ldots$ $m=1,2,3,\ldots$ $\mathrm{Re}\, s > o$
180	$\dfrac{(s-\frac{1}{2})^n}{(s+\frac{1}{2})^{n+1}}$	$e^{-\frac{t}{2}}L_n(t)$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s > -\frac{1}{2}$
181	$\dfrac{(a-s)^n}{(a+s)^{n+1}}$	$\dfrac{k_{2n+1}(at)}{2a}$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s > -\mathrm{Re}\, a$
182	$\dfrac{1}{P(s)}$ $P(s)=(s-b_1)(s-b_2)\ldots(s-b_n)$ $b_i \neq b_k$ for $i \neq k$	$\displaystyle\sum_{m=1}^{n}\frac{e^{b_m t}}{P_m(b_m)}$ $P_m(s)=\dfrac{P(s)}{s-b_m}$	$\mathrm{Re}\, s > \mathrm{Max}\,\mathrm{Re}\, b_i\ (i=1,2,\ldots,n)$
183	$\dfrac{1}{sP(s)}$ $P(s)=(s-b_1)(s-b_2)\ldots(s-b_n)$ $b_i \neq b_k$ for $i \neq k$	$\dfrac{1}{P(o)}+\displaystyle\sum_{m=1}^{n}\frac{e^{b_m t}}{b_m P_m(b_m)}$ $P_m(s)=\dfrac{P(s)}{s-b_m}$	$\mathrm{Re}\, s > \mathrm{Max}\,\mathrm{Re}\, b_i\ (i=1,2,\ldots,n)$

1(Contd.)

	$g(s)$	$f(t)$	
184	$\dfrac{Q(s)}{P(s)}$ $P(s)=(s-b_1)^{m_1}\dots(s-b_n)^{m_n}$ $Q(s)$ = polynomial of degree $< m_1+\dots+m_n-1$ $b_i \neq b_k$ for $i \neq k$	$\sum_{k=1}^{n}\sum_{r=1}^{m_k}\dfrac{\phi_{kr}(b_k)}{(m_k-r)!(r-1)!}t^{m_k-r}e^{b_k t}$ $\phi_{kr}(s)=\dfrac{d^{r-1}}{ds^{r-1}}\left[\dfrac{Q(s)}{P_k(s)}\right]$ $P_k(s)=\dfrac{P(s)}{(s-b_k)^{m_k}}$	$\mathrm{Re}\, s > \mathrm{Max}\, \mathrm{Re}\, b_i\ (i=1,2,\dots,n)$
185	$\dfrac{Q(s)}{P(s)}$ $P(s)=(s-b_1)(s-b_2)\dots(s-b_n)$ $Q(s)$ = polynomial of degree $\leq n-1$ $n=1,2,3,\dots$ $b_i \neq b_k$ for $i \neq k$	$\sum_{m=1}^{n}\dfrac{Q(b_m)}{P_m(b_m)}e^{b_m t}$ $P_m(s)=\dfrac{P(s)}{s-b_m}$	$\mathrm{Re}\, s > \mathrm{Max}\, \mathrm{Re}\, b_i\ (i=1,2,\dots,n)$
186	$\dfrac{Q(s)+sN(s)}{P(s)}$ $P(s)=(s^2+b_1^2)\dots(s^2+b_n^2)$ $Q(s),N(s)$ = polynomials of even degree $\leq (2n-2)$ $n=1,2,3,\dots$ $b_i \neq b_k$ for $i \neq k$	$\sum_{m=1}^{n}\dfrac{1}{P_m(ib_m)}[N(ib_m)\cos(b_m t)+(b_m)^{-1}Q(ib_m)\sin(b_m t)]$ $P_m(s)=\dfrac{P(s)}{s^2+b_m^2}$	$\mathrm{Re}\, s > \mathrm{Max}\lvert\mathrm{Im}\, b_i\rvert (i=1,2,\dots,n)$
187	$\dfrac{1}{[s^2+a^2][s^2+(3a)^2]\dots[s^2+\lvert(2n+1)a\rvert^2]}$	$\dfrac{\sin^{2n+1}(at)}{(2n+1)!\,a^{2n+1}}$	$n=0,1,2,\dots$ $\mathrm{Re}\, s > (2n+1)\lvert\mathrm{Im}\, a\rvert$
188	$\dfrac{1}{s[s^2+(2a)^2][s^2+(4a)^2]\dots[s^2+(2na)^2]}$	$\dfrac{\sin^{2n}(at)}{(2n)!\,a^{2n}}$	$n=1,2,3,\dots$ $\mathrm{Re}\, s > 2n\lvert\mathrm{Im}\, a\rvert$
189	$\dfrac{[s^2+a^2][s^2+(3a)^2]\dots[s^2+(2na-a)^2]}{s[s^2+(2a)^2][s^2+(4a)^2]\dots[s^2+(2na)^2]}$	$P_{2n}[\cos(at)]$	$n=1,2,3,\dots$ $\mathrm{Re}\, s > 2n\lvert\mathrm{Im}\, a\rvert$
190	$\dfrac{s[s^2+(2a)^2][s^2+(4a)^2]\dots[s^2+(2na)^2]}{[s^2+a^2][s^2+(3a)^2]\dots[s^2+(2na+a)^2]}$	$P_{2n+1}[\cos(at)]$	$n=1,2,3,\dots$ $\mathrm{Re}\, s > (2n+1)\lvert\mathrm{Im}\, a\rvert$

1(Contd.)

	$g(s)$	$f(t)$	
191	$\dfrac{[s^2-a^2][s^2-(3a)^2]\dots[s^2-(2na-a)^2]}{s[s^2-(2a)^2][s^2-(4a)^2]\dots[s^2-(2na)^2]}$	$P_{2n}[\cosh(at)]$	$n=1,2,3,\dots$ $\mathrm{Re}\, s > 2n\lvert\mathrm{Re}\, a\rvert$
192	$\dfrac{s[s^2-(2a)^2][s^2-(4a)^2]\dots[s^2-(2na)^2]}{[s^2-a^2][s^2-(3a)^2]\dots[s^2-(2na+a)^2]}$	$P_{2n+1}[\cosh(at)]$	$n=1,2,3,\dots$ $\mathrm{Re}\, s > (2n+1)\lvert\mathrm{Re}\, a\rvert$
193	$\dfrac{1+\dfrac{s^2}{2!a^2}+\dots+\dfrac{s^2[s^2+4a^2]\dots[s^2+4(na-a)^2]}{(2n)!\,a^{2n}}}{s[s^2+(2a)^2][s^2+(4a)^2]\dots[s^2+(2na)^2]}$	$\dfrac{\cos^{2n}(at)}{(2n)!\,a^{2n}}$	$n=1,2,3,\dots$ $\mathrm{Re}\, s > 2n\lvert\mathrm{Im}\, a\rvert$
194	$\dfrac{s\left\{1+\dfrac{s^2+a^2}{3!a^2}+\dots+\dfrac{[s^2+a^2][s^2+(3a)^2]\dots[s^2+(2na-a)^2]}{(2n+1)!\,a^{2n}}\right\}}{[s^2+a^2][s^2+(3a)^2]\dots[s^2+(2na+a)^2]}$	$\dfrac{\cos^{2n+1}(at)}{(2n+1)!\,a^{2n}}$	$n=1,2,3,\dots$ $\mathrm{Re}\, s > (2n+1)\lvert\mathrm{Im}\, a\rvert$
195	$\dfrac{1}{s}\left(\dfrac{a}{s}-1\right)\left(\dfrac{a}{s}-\dfrac{1}{2}\right)\dots\left(\dfrac{a}{s}-\dfrac{1}{n}\right)$	$A_n(at)$	$\mathrm{Re}\, s > 0$
196	$\dfrac{(s-1)(s-2)\dots(s-n+1)}{(s+n)(s+n-2)\dots(s-n+2)}$	$P_n(e^{-t})$	$n=2,3,4,\dots$ $\mathrm{Re}\, s > 0$
197	$\sum_{m=0}^{n}\binom{a+m-1}{m}\dfrac{(s-1)^{n-m}}{s^{n-m+1}}$	$L_n^a(t)$	$n=0,1,2,\dots$ $\mathrm{Re}\, s > 0$
198	$\dfrac{a_1 s^{n-1}+a_2 s^{n-2}+\dots+a_n}{(s+b)^n}$	$\Big\{a_1+\left[a_2-\binom{n-1}{1}a_1 b\right]t$ $+\left[a_3-\binom{n-2}{1}a_2 b+\binom{n-1}{2}a_1 b^2\right]\dfrac{t^2}{2!}$ $+\dots+[a_n-a_{n-1}b+\dots+a_1(-b)^{n-1}]\cdot\dfrac{t^{n-1}}{(n-1)!}\Big\}e^{-bt}$	$n=1,2,3,\dots$ $\mathrm{Re}\, s > -\mathrm{Re}\, b$

	g(s)	f(t)	
1(Contd.)			
199	$\frac{a_1 s^{n-1} + a_2 s^{n-2} + \dots + a_n}{(s+b_1)(s+b_2)\dots(s+b_n)}$	$\sum_{k=1}^{n} \frac{a_1(-b_k)^{n-1} + a_2(-b_k)^{n-2} + \dots + a_n}{\prod_{i=1, i\neq k}^{n} (b_i - b_k)} e^{-b_k t}$	$n = 1,2,3,\dots$ $\mathrm{Re}\, s > \mathrm{Max} - \mathrm{Re}\, b_i \; (i = 1,2,3,\dots,n)$
200	$\frac{1}{s} + \sum_{m=1}^{n} \frac{2s}{s^2 + 4m^2}$	$\frac{\sin[(2n+1)t]}{\sin t}$	$n = 1,2,3,\dots$ $\mathrm{Re}\, s > 0$
201	$\frac{2n+1}{s^2+(2n+1)^2} + 2\sum_{m=0}^{n-1} \frac{(-1)^m(2m+1)}{s^2+(2m+1)^2}$	$\tan t \cos[(2n+1)t]$	$n = 1,2,3,\dots$ $\mathrm{Re}\, s > 0$
202	$\left(\frac{s}{s^2+a^2}\right)^{n+1} \sum_{0 \leq 2m \leq n} (-1)^m \binom{n+1}{2m+1} \left(\frac{a}{s}\right)^{2m+1}$	$\frac{t^n \sin(at)}{n!}$	$n = 0,1,2,\dots$ $\mathrm{Re}\, s > \lvert \mathrm{Im}\, a \rvert$
203	$\left(\frac{s}{s^2+a^2}\right)^{n+1} \sum_{0 \leq 2m \leq n+1} (-1)^m \binom{n+1}{2m} \left(\frac{a}{s}\right)^{2m}$	$\frac{t^n \cos(at)}{n!}$	$n = 0,1,2,\dots$ $\mathrm{Re}\, s > \lvert \mathrm{Im}\, a \rvert$
204	$s^n \left(1 + \frac{1}{2}\frac{d}{ds}\right)^n \left(\frac{1}{s^{n+1}}\right)$	$P_n(1-t)$	$n = 0,1,2,\dots$ $\mathrm{Re}\, s > 0$
Functions of s only			
2 1	$\frac{1}{s^{\frac{1}{2}}}$	$\frac{1}{(\pi t)^{\frac{1}{2}}}$	$\mathrm{Re}\, s > 0$
2	$\frac{1}{s^{\frac{3}{2}}}$	$2\left(\frac{t}{\pi}\right)^{\frac{1}{2}}$	$\mathrm{Re}\, s > 0$
3	$\frac{1}{s^{n+\frac{1}{2}}}$	$\frac{t^{n-\frac{1}{2}}}{\pi^{\frac{1}{2}}\left(\frac{1}{2}\right)\left(\frac{3}{2}\right)\dots\left(\frac{2n-1}{2}\right)}$	$n = 1,2,3,\dots$ $\mathrm{Re}\, s > 0$
4	$\frac{1}{s^{\nu}}$	$\frac{t^{\nu-1}}{\Gamma(\nu)}$	$\mathrm{Re}\, \nu > 0$ $\mathrm{Re}\, s > 0$

	g(s)	f(t)	
2(Contd.)			
5	$\sum_{m=0}^{[\frac{n}{2}]} \frac{n!\,\Gamma(a+n-2m)}{m!(n-2m)!}\left(-\frac{1}{2}\right)^m s^{2m-a-n}$	$t^{a-1} He_n(t)$	$n = 0,1,2,\dots$ $\mathrm{Re}\, a > 0$ for n even $\mathrm{Re}\, a > -1$ for n odd $\mathrm{Re}\, s > 0$
Functions of $(s \pm a)$ only			
6	$\frac{1}{(s+a)^{\frac{1}{2}}}$	$\frac{e^{-at}}{(\pi t)^{\frac{1}{2}}}$ $= \frac{(2a)^{\frac{1}{2}}}{\pi} K_{\frac{1}{2}}(at)$	$\mathrm{Re}\, s > -\mathrm{Re}\, a$
7	$\frac{1}{(s+a)^{\nu}}$	$\frac{t^{\nu-1} e^{-at}}{\Gamma(\nu)}$	$\mathrm{Re}\, \nu > 0$ $\mathrm{Re}\, s > -\mathrm{Re}\, a$
8	$(s-a)^{\frac{1}{2}} - (s-b)^{\frac{1}{2}}$	$\frac{e^{bt} - e^{at}}{2\pi^{\frac{1}{2}} t^{\frac{3}{2}}}$	$\mathrm{Re}\, s > \mathrm{Max}\; \mathrm{Re}\, a, \mathrm{Re}\, b$
9	$\frac{1}{(s-a)^{\nu}} + \frac{1}{(s+a)^{\nu}}$	$\frac{2t^{\nu-1}\cosh(at)}{\Gamma(\nu)}$	$\mathrm{Re}\, \nu > 0$ $\mathrm{Re}\, s > \lvert \mathrm{Re}\, a \rvert$
10	$\frac{1}{(s-a)^{\nu}} - \frac{1}{(s+a)^{\nu}}$	$\frac{2t^{\nu-1}\sinh(at)}{\Gamma(\nu)}$	$\mathrm{Re}\, \nu > -1$ $\mathrm{Re}\, s > \lvert \mathrm{Re}\, a \rvert$
11	$\frac{1}{(s-ia)^{\nu}} + \frac{1}{(s+ia)^{\nu}}$	$\frac{2}{\Gamma(\nu)} t^{\nu-1} \cos(at)$	$\mathrm{Re}\, \nu > 0$ $\mathrm{Re}\, s > \lvert \mathrm{Im}\, a \rvert$
12	$\frac{1}{(s+ia)^{\nu}} - \frac{1}{(s-ia)^{\nu}}$	$-\frac{2i}{\Gamma(\nu)} t^{\nu-1} \sin(at)$	$\mathrm{Re}\, \nu > -1$ $\mathrm{Re}\, s > \lvert \mathrm{Im}\, a \rvert$
13	$\sum_{n=1}^{\infty} \frac{1}{(s+n)^{\nu}}$	$\frac{t^{\nu-1}}{\Gamma(\nu)(e^{t}-1)}$	$\mathrm{Re}\, \nu > 1$ $\mathrm{Re}\, s > -1$

2(Contd.)

	$g(s)$	$f(t)$	
14	$\sum_{n=1}^{\infty}\frac{(-1)^{n-1}}{(s+n)^{\nu}}$	$\frac{t^{\nu-1}}{\Gamma(\nu)(1+e^{t})}$	Re $\nu > 1$ Re $s > -1$
15	$\sum_{n=0}^{\infty}\frac{a^{n}}{(s+n)^{\nu}}$	$\frac{t^{\nu-1}}{\Gamma(\nu)(1-ae^{-t})}$	Re $\nu > 0$ $\lvert a\rvert < 1$ Re $s > 0$
16	$\left(\frac{s+a}{s-a}\right)^{\frac{1}{2}}-1$	$a[I_0(at)+I_1(at)]$	Re $s > \lvert$Re $a\rvert$
17	$\frac{(s+a)^{\frac{1}{2}}}{(s+b)^{\frac{3}{2}}}$	$e^{-\frac{a+b}{2}t}[\lvert 1+(a-b)t\rvert I_0(\frac{a-b}{2}t)+(a-b)tI_1(\frac{a-b}{2}t)]$	Re $s >$ Max $-$Re a, $-$Re b
18	$\frac{1}{(s+a)^{\frac{1}{2}}(s+b)^{\frac{1}{2}}}$	$e^{-\frac{a+b}{2}t}I_0(\frac{a-b}{2}t)$	Re $s >$ Max $-$Re a, $-$Re b
19	$\frac{1}{(s+a)^{\frac{1}{2}}(s+b)^{\frac{3}{2}}}$	$te^{-\frac{a+b}{2}t}[I_0(\frac{a-b}{2}t)+I_1(\frac{a-b}{2}t)]$	Re $s >$ Max $-$Re a, $-$Re b
20	$\frac{1}{[(s-a)(s-b)(s-c)]^{\frac{1}{2}}}$	$\frac{1}{\pi^{\frac{3}{2}}}\frac{e^{at}}{t^{\frac{1}{2}}}*\frac{e^{bt}}{t^{\frac{1}{2}}}*\frac{e^{ct}}{t^{\frac{1}{2}}}$ $=\frac{e^{at}}{(\pi t)^{\frac{1}{2}}}*I_0(\frac{b-c}{2}t)e^{\frac{b+c}{2}t}$	Re $s >$ Max Re a, Re b, Re c
21	$\frac{(s-a)^{\nu}}{(s+a)^{\nu+\frac{1}{2}}}$	$\frac{\Gamma(\frac{1}{2}-\nu)}{2^{\nu+1}\pi t^{\frac{1}{2}}}[D_{2\nu}(2a^{\frac{1}{2}}t^{\frac{1}{2}})+D_{2\nu}(-2a^{\frac{1}{2}}t^{\frac{1}{2}})]$	Re $s > \lvert$Re $a\rvert$
22	$\frac{(s-a)^{\nu}}{(s-b)^{\nu+\frac{1}{2}}}$	$\frac{\Gamma(\frac{1}{2}-\nu)e^{\frac{a+b}{2}t}}{2^{\nu+1}\pi t^{\frac{1}{2}}}\Big\{D_{2\nu}[-2^{\frac{1}{2}}(a-b)^{\frac{1}{2}}t^{\frac{1}{2}}]$ $+D_{2\nu}[2^{\frac{1}{2}}(a-b)^{\frac{1}{2}}t^{\frac{1}{2}}]\Big\}$	Re $s >$ Max Re a, Re b

2(Contd.)

	$g(s)$	$f(t)$	
23	$\frac{(s-a)^{\nu}}{(s+a)^{\nu+\frac{3}{2}}}$	$\frac{\Gamma(-\nu-\frac{1}{2})}{2^{\nu+2}\pi a^{\frac{1}{2}}}[D_{2\nu+1}(-2a^{\frac{1}{2}}t^{\frac{1}{2}})-D_{2\nu+1}(2a^{\frac{1}{2}}t^{\frac{1}{2}})]$	Re $s > \lvert$Re $a\rvert$
24	$\frac{(s-a)^{\nu}}{(s-b)^{\nu+\frac{3}{2}}}$	$\frac{\Gamma(-\frac{1}{2}-\nu)e^{\frac{a+b}{2}t}}{2^{\nu+\frac{3}{2}}\pi(a-b)^{\frac{1}{2}}}\Big\{D_{2\nu+1}[-2^{\frac{1}{2}}(a-b)^{\frac{1}{2}}t^{\frac{1}{2}}]$ $-D_{2\nu+1}[2^{\frac{1}{2}}(a-b)^{\frac{1}{2}}t^{\frac{1}{2}}]\Big\}$	Re $s >$ Max Re a, Re b
25	$\frac{1}{(s+a)^{\nu}(s+b)^{\nu}}$	$\frac{\pi^{\frac{1}{2}}}{\Gamma(\nu)}\left(\frac{t}{a-b}\right)^{\nu-\frac{1}{2}}e^{-\frac{a+b}{2}t}I_{\nu-\frac{1}{2}}\left(\frac{a-b}{2}t\right)$	Re $\nu > 0$ Re $s >$ Max $-$Re a, $-$Re b
26	$\frac{(s-a)^{\nu}}{(s+a)^{\mu}}$	$\frac{t^{\frac{\mu-\nu}{2}-1}M_{\frac{\mu+\nu}{2},\frac{\mu-\nu-1}{2}}(2at)}{(2a)^{\frac{\mu-\nu}{2}}\Gamma(\mu-\nu)}$	Re$(\mu-\nu) > 0$ Re $s > \lvert$Re $a\rvert$
27	$\frac{(s-a)^{\mu}}{(s+a)^{\nu}}$	$\frac{t^{\frac{\nu-\mu-2}{2}}W_{\frac{\mu+\nu}{2},\frac{\nu-\mu-1}{2}}(2at)}{\Gamma(\nu)(2a)^{\frac{\nu-\mu}{2}}}$	Re$(\nu-\mu) > 0$ Re $s > \lvert$Re $a\rvert$
28	$\frac{(s-a)^{\mu}}{(s-b)^{\nu}}$	$\frac{t^{\nu-\mu-1}e^{at}}{\Gamma(\nu-\mu)}{}_1F_1[\nu;\nu-\mu;(b-a)t]$ $=\frac{(a-b)^{\frac{\mu-\nu}{2}}t^{\frac{\nu-\mu}{2}-1}}{\Gamma(\nu-\mu)}e^{\frac{a+b}{2}t}M_{\frac{\mu+\nu}{2},\frac{\nu-\mu-1}{2}}[(a-b)t]$	Re$(\nu-\mu) > 0$ Re $s >$ Max Re a, Re b
29	$[(s+a)^{\frac{1}{2}}(s+b)^{\frac{1}{2}}]^{\nu}$	$\frac{\nu(a-b)^{\frac{\nu}{2}}e^{-\frac{a+b}{2}t}}{2t}I_{\frac{\nu}{2}}\left(\frac{a-b}{2}t\right)$	Re $\nu > 0$ Re $s >$ Max $-$Re a, $-$Re b
30	$\frac{[(s+a)^{\frac{1}{2}}-(s+b)^{\frac{1}{2}}]^{\nu}}{(s+a)^{\frac{1}{2}}(s+b)^{\frac{1}{2}}}$	$(a-b)^{\frac{\nu}{2}}e^{-\frac{a+b}{2}t}I_{\frac{\nu}{2}}\left(\frac{a-b}{2}t\right)$	Re $\nu > -2$ Re $s >$ Max $-$Re a, $-$Re b
31	$\frac{(s+a)^{\frac{1}{2}}[(s+a)^{\frac{1}{2}}-(s-a)^{\frac{1}{2}}]}{(s-a)^{\frac{1}{2}}}$	$\frac{(2a)^{\frac{\nu}{2}+1}}{4}[I_{\frac{\nu}{2}-1}(at)+2I_{\frac{\nu}{2}}(at)+I_{\frac{\nu}{2}+1}(at)]$	Re $\nu > 0$ Re $s >$ Re a

	g(s)	f(t)	
2(Contd.)			
32	$\frac{1}{(s+1)^c\left(1-2\,\frac{s-1}{s+1}\,b+b^2\right)^a}$	$\frac{t^{c-1}e^{-t}}{\Gamma(c)(1-b)^{2a}}\,{}_1F_1[a;c;-\frac{4bt}{(1-b^2)}]$	Re $c>0$ Re $s>$ Max $-1, -$ Re $\left(\frac{1+b}{1-b}\right)^2$
Functions of $s,(s\pm a)$ Only			
33	$\frac{(s+a)^{\frac{1}{2}}}{s}$	$\frac{e^{-at}}{(\pi t)^{\frac{1}{2}}}+a^{\frac{1}{2}}\mathrm{Erf}[(at)^{\frac{1}{2}}]$	Re $s>$ Max $0, -$ Re a
34	$\frac{(s+a)^{\frac{1}{2}}}{s^{\frac{1}{2}}}$	$e^{-\frac{at}{2}}[(1+at)I_0(\frac{at}{2})+atI_1(\frac{at}{2})]$	Re $s>$ Max $0, -$ Re a
35	$\frac{s^{\nu-1}}{(s+a)^{\nu}}$	$\frac{2e^{-\frac{at}{2}}M_{\nu-\frac{1}{4},\frac{1}{4}}(at)}{(a^2\pi^2t)^{\frac{1}{4}}}$	Re $s>$ Max $0, -$ Re a
36	$\frac{s^{\nu-1}}{(s-a)^{\nu}}$	${}_1F_1[\nu,1;at]$	Re $s>$ Max $0,$ Re a
37	$\frac{s^{\nu-\frac{1}{4}}}{(s+a)^{\nu+\frac{1}{4}}}$	$\frac{e^{-\frac{at}{2}}M_{\nu,-\frac{1}{4}}(at)}{(a\pi^2t^3)^{\frac{1}{4}}}$	Re $s>$ Max $0, -$ Re a
38	$\frac{s^c}{(s-b)^a}$	$\frac{t^{a-c-1}}{\Gamma(a-c)}\,{}_1F_1[a;a-c;bt]$	Re$(a-c)>0$ Re $b>0$ Re $s>0$
39	$\frac{1}{s(s+a)^{\frac{1}{2}}}$	$a^{-\frac{1}{2}}\mathrm{Erf}(a^{\frac{1}{2}}t^{\frac{1}{2}})$	Re $s>$ Max $0, -$ Re a
40	$\frac{(s+b)^{\frac{1}{2}}}{s(s+a)^{\frac{1}{2}}}$	$e^{-\frac{a+b}{2}t}I_0(\frac{a-b}{2}t)+b\int_0^t e^{-\frac{a+b}{2}u}I_0(\frac{a-b}{2}u)du$	Re $s>$ Max $0, -$ Re $a, -$ Re b

	g(s)	f(t)	
2(Contd.)			
41	$\frac{1}{s}[1-(\frac{a}{a+s})^{\nu}]$	$\frac{\Gamma(\nu,at)}{\Gamma(\nu)}$	Re $s>-$ Re a Re $\nu>-1$
42	$\frac{1}{s^c(1-\frac{x}{s})^a(1-\frac{y}{s})^b}$	$\frac{t^{c-1}}{\Gamma(c)}\Phi_2(a,b,c;xt,yt)$	Re $c>0$ Re $s>$ Max $0, x, y$
43	$\frac{1}{s^c}\left(1-\frac{b_1}{s}\right)^{-a_1}\cdots\left(1-\frac{b_n}{s}\right)^{-a_n}$	$\frac{t^{c-1}}{\Gamma(c)}\Phi_2(a_1,\ldots,a_n;c;b_1t,\ldots,b_nt)$	Re $c>0$ Re $s>$ Max $0,$ Re $b_j\,(j=1,\ldots,n)$
Functions of $[(s+a)^{\frac{1}{2}}\pm b^{\frac{1}{2}}]$			
44	$[(s+a)^{\frac{1}{2}}+b^{\frac{1}{2}}]^{\nu}$	$-(\frac{2}{\pi})^{\frac{1}{2}}\frac{\nu e^{(\frac{b}{2}-a)t}}{(2t)^{\frac{\nu}{2}+1}}D_{\nu-1}[(2bt)^{\frac{1}{2}}]$	Re $\nu<0$ Re $s>$ Max Re $a,$ Re$(a-b)$
45	$\frac{[(s+a)^{\frac{1}{2}}+b^{\frac{1}{2}}]^{\nu}}{(s+a)^{\frac{1}{2}}}$	$\frac{2^{\frac{1}{2}}e^{(\frac{b}{2}-a)t}}{\pi^{\frac{1}{2}}(2t)^{\frac{\nu+1}{2}}}D_{\nu}[(2bt)^{\frac{1}{2}}]$	Re $\nu<1$ Re $s>$ Max Re $a,$ Re$(a-b)$
46	$\frac{(s+a)^{\frac{1}{2}}-a^{\frac{1}{2}}}{s(s+a)^{\frac{1}{2}}}$	$\mathrm{Erfc}(a^{\frac{1}{2}}t^{\frac{1}{2}})$	Re $s>-$ Re a
47	$\frac{[(s+a)^{\frac{1}{2}}-a^{\frac{1}{2}}]^{\nu}}{s^{\nu}(s+a)^{\frac{1}{2}}}$	$(\frac{2}{\pi})^{\frac{1}{2}}(2t)^{\frac{\nu-1}{2}}e^{-\frac{at}{2}}D_{-\nu}[(2at)^{\frac{1}{2}}]$	Re $\nu>-1$ Re $s>-$ Re a
48	$\left[\frac{(s+a)^{\frac{1}{2}}-a^{\frac{1}{2}}}{s}\right]^{\nu}$	$(\frac{2}{\pi})^{\frac{1}{2}}\nu(2t)^{\frac{\nu}{2}-1}e^{-\frac{at}{2}}D_{-\nu-1}[(2at)^{\frac{1}{2}}]$	Re $\nu>0$ Re $s>-$ Re a
Functions of $(s^{\frac{1}{2}}\pm a)$			
49	$\frac{1}{s^{\frac{1}{2}}+a}$	$\frac{1}{(\pi t)^{\frac{1}{2}}}-ae^{a^2t}\mathrm{Erfc}(at^{\frac{1}{2}})$	Re $s>0$ if Re $a>0$ Re $s>$ Max $0,$ Re a^2 if Re $a<0$

	$g(s)$	$f(t)$	
Contd.)			
	$(a+s^{\frac{1}{2}})^{\nu}$	$-\dfrac{\nu e^{\frac{a^2t}{2}} D_{\nu-1}(2^{\frac{1}{2}}at^{\frac{1}{2}})}{(2\pi)^{\frac{1}{2}}2^{\frac{\nu}{2}}t^{\frac{\nu}{2}+1}}$	Re $\nu < 0$ Re $s > 0$ if Re $a \geq 0$ Re $s >$ Max 0, Re a^2 if Re $a < 0$
	$\dfrac{1}{s^{\frac{1}{2}}(s^{\frac{1}{2}}+a)}$	$e^{a^2t}\mathrm{Erfc}(at^{\frac{1}{2}})$	Re $s > 0$ if Re $a \geq 0$ Re $s >$ Max 0, Re a^2 if Re $a < 0$
	$\dfrac{1}{s(s^{\frac{1}{2}}+a)}$	$\frac{1}{a}[1-e^{a^2t}\mathrm{Erfc}(at^{\frac{1}{2}})]$	Re $s > 0$ if Re $a \geq 0$ Re $s >$ Max 0, Re a^2 if Re $a < 0$
	$\dfrac{s^{\frac{1}{2}}+a}{s^{\frac{1}{2}}}$	$\dfrac{2t^{\frac{1}{2}}}{a\pi^{\frac{1}{2}}}+\dfrac{e^{a^2t}}{a^2}\mathrm{Erfc}(at^{\frac{1}{2}})-\dfrac{1}{a^2}$	Re $s > 0$
	$\dfrac{(a+s^{\frac{1}{2}})^{\nu}}{s^{\frac{1}{2}}}$	$\dfrac{e^{\frac{a^2t}{2}} D_{\nu}(2^{\frac{1}{2}}at^{\frac{1}{2}})}{2^{\frac{\nu}{2}}\pi^{\frac{1}{2}}t^{\frac{\nu+1}{2}}}$	Re $\nu < 1$ Re $s > 0$
	$\dfrac{1}{s}\left(\dfrac{s^{\frac{1}{2}}-a}{s^{\frac{1}{2}}+a}\right)$ $\dfrac{\sqrt{s}-a}{\sqrt{s}+a}$?	$2e^{a^2t}\mathrm{Erfc}(at^{\frac{1}{2}})-1$	Re $s > 0$ if Re $a \geq 0$ Re $s >$ Max 0, Re a^2 if Re $a < 0$
ıctions of $(s^2 \pm a^2)$ Only			
	$\dfrac{1}{(s^2+a^2)^{\frac{1}{2}}}$	$J_0(at)$	Re $s > \lvert \mathrm{Im}\ a \rvert$
	$\dfrac{1}{(s^2-a^2)^{\frac{1}{2}}}$	$I_0(at)$	Re $s > \lvert \mathrm{Re}\ a \rvert$
	$\dfrac{1}{(s^2+a^2)^{n+\frac{1}{2}}}$	$\dfrac{t^n J_n(at)}{1.3.5\ldots(2n-1)a^n}$	$n = 1,2,3,\ldots$ Re $s > \lvert \mathrm{Im}\ a \rvert$
	$\dfrac{1}{(s^2-a^2)^{n+\frac{1}{2}}}$	$\dfrac{t^n I_n(at)}{1.3.5\ldots(2n-1)a^n}$	$n = 1,2,3,\ldots$ Re $s > \lvert \mathrm{Re}\ a \rvert$

	$g(s)$	$f(t)$	
2(Contd.)			
60	$\dfrac{1}{(s^2+a^2)^{\nu}}$	$\dfrac{\pi^{\frac{1}{2}}t^{\nu-\frac{1}{2}}J_{\nu-\frac{1}{2}}(at)}{(2a)^{\nu-\frac{1}{2}}\Gamma(\nu)}$	Re $\nu > 0$ Re $s > \lvert \mathrm{Im}\ a \rvert$
61	$\dfrac{1}{(s^2-a^2)^{\nu}}$	$\dfrac{\pi^{\frac{1}{2}}t^{\nu-\frac{1}{2}}I_{\nu-\frac{1}{2}}(at)}{(2a)^{\nu-\frac{1}{2}}\Gamma(\nu)}$	Re $\nu > 0$ Re $s > \lvert \mathrm{Re}\ a \rvert$
Functions of s, $(s^2 \pm a^2)$ Only			
62	$\dfrac{1}{s(s^2+a^2)^{\frac{1}{2}}}$	$\dfrac{\pi t}{2a^2}[J_1(at)H_0(at)-J_0(at)H_1(at)]$	Re $s > \lvert \mathrm{Im}\ a \rvert$
63	$\dfrac{1}{s(s^2+a^2)^{\nu}}$	$\dfrac{\pi t}{2a^{2\nu-1}}[J_{\nu-\frac{1}{2}}(at)H'_{\nu-\frac{1}{2}}(at)$ $-J'_{\nu-\frac{1}{2}}(at)H_{\nu-\frac{1}{2}}(at)]$	Re $\nu > -\frac{1}{2}$ Re $s > \lvert \mathrm{Im}\ a \rvert$
64	$\dfrac{1}{s(s^2-a^2)^{\frac{1}{2}}}$	$\dfrac{\pi t}{2a^2}[I_1(at)L_0(at)-I_0(at)L_1(at)]$	Re $s > \lvert \mathrm{Re}\ a \rvert$
65	$\dfrac{1}{s(s^2-a^2)^{\nu}}$	$\dfrac{\pi t}{2a^{2\nu-1}}[I_{\nu-\frac{1}{2}}(at)L'_{\nu-\frac{1}{2}}(at)-I'_{\nu-\frac{1}{2}}(at)L_{\nu-\frac{1}{2}}(at)]$	Re $\nu > -\frac{1}{2}$ Re $s > \lvert \mathrm{Re}\ a \rvert$
66	$\dfrac{1}{s^{2\mu}(s^2+a^2)^{\nu}}$	$\dfrac{t^{2\mu+2\nu-1}}{\Gamma(2\mu+2\nu)}\,{}_1F_2\left[{\nu;\atop \mu+\nu,\mu+\nu+\frac{1}{2};}-\dfrac{a^2t^2}{4}\right]$	Re$(\mu+\nu) > 0$ Re $s > \lvert \mathrm{Im}\ a \rvert$
67	$\dfrac{s}{(s^2+a^2)^{\nu}}$	$\dfrac{\pi^{\frac{1}{2}}t^{\nu-\frac{1}{2}}J_{\nu-\frac{3}{2}}(at)}{2^{\nu-\frac{1}{2}}\Gamma(\nu)a^{\nu-\frac{3}{2}}}$	Re $\nu > \frac{1}{2}$ Re $s > \lvert \mathrm{Im}\ a \rvert$
68	$\dfrac{s}{(s^2-a^2)^{\nu}}$	$\dfrac{\pi^{\frac{1}{2}}t^{\nu-\frac{1}{2}}I_{\nu-\frac{3}{2}}(at)}{2^{\nu-\frac{1}{2}}\Gamma(\nu)a^{\nu-\frac{3}{2}}}$	Re $\nu > \frac{1}{2}$ Re $s > \lvert \mathrm{Re}\ a \rvert$

	g(s)	f(t)	
2(Contd.)			
Functions of (s^2-a^2), $(s\pm a)$, (s^2+as+b)			
69	$\frac{1}{(s^2+as+b)^{\frac{1}{2}}}$	$e^{-\frac{at}{2}}J_0[(b-\frac{a^2}{4})^{\frac{1}{2}}t]$	$\operatorname{Re} s > \lvert \operatorname{Im}(b-\frac{a^2}{4})^{\frac{1}{2}}\rvert - \operatorname{Re}\frac{a}{2}$
70	$\frac{(s+a)^{\nu}+(s-a)^{\nu}}{(s^2-a^2)^{\nu}}$	$\frac{2t^{\nu-1}\cosh(at)}{\Gamma(\nu)}$	$\operatorname{Re}\nu > 0$ $\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$
Functions of $s,(s^3+a^3)$			
71	$\frac{1}{(s^3+a^3)^{\frac{1}{3}}}$	${}_0F_2[1,\frac{2}{3};-(\frac{at}{3})^3]$	$\operatorname{Re} s > \operatorname{Max} - \operatorname{Re} a, \frac{\operatorname{Re} a + 3^{\frac{1}{2}}\lvert\operatorname{Im} a\rvert}{2}$
72	$\frac{1}{(s^3+a^3)^{\frac{1}{2}}}$	$\frac{2(\pi t)^{\frac{1}{2}}}{3\Gamma(\frac{7}{6})\Gamma(\frac{5}{6})}\,{}_0F_2\left[\frac{7}{6},\frac{5}{6};-\left(\frac{at}{3}\right)^3\right]$	$\operatorname{Re} s > \operatorname{Max} - \operatorname{Re} a, \frac{\operatorname{Re} a + 3^{\frac{1}{2}}\lvert\operatorname{Im} a\rvert}{2}$
73	$\frac{s}{(s^3+a^3)^{\frac{1}{2}}}$	$\frac{2\pi^{\frac{1}{2}}a^{\frac{1}{3}}}{3^{\frac{1}{3}}t^{\frac{1}{6}}\Gamma(\frac{7}{6})\Gamma(\frac{1}{6})}\,{}_0F_2\left[\frac{7}{6},\frac{1}{6};-\left(\frac{at}{3}\right)^3\right]$	$\operatorname{Re} s > \operatorname{Max} - \operatorname{Re} a, \frac{\operatorname{Re} a + 3^{\frac{1}{2}}\lvert\operatorname{Im} a\rvert}{2}$
74	$\frac{1}{s^{3\mu}(s^3+a^3)^{\nu}}$	$\frac{t^{3\mu+3\nu-1}}{\Gamma(3\mu+3\nu)}\,{}_1F_3\left[{\nu;\atop \mu+\nu,\mu+\nu+\frac{1}{3},\mu+\nu+\frac{2}{3};}-\frac{a^3t^3}{27}\right]$	$\operatorname{Re}(\mu+\nu) > 0$ $\operatorname{Re} s > \operatorname{Max} - \operatorname{Re} a, \frac{\operatorname{Re} a + 3^{\frac{1}{2}}\lvert\operatorname{Im} a\rvert}{2}$
Functions of $s,(s^4+a^4)$			
75	$\left[\frac{1}{(s^4+a^4)^{\frac{1}{2}}}+\frac{s^2}{s^4+a^4}\right]^{\frac{1}{2}}$	$2^{\frac{1}{2}}\operatorname{ber}(at)$	$\operatorname{Re} s > \frac{\lvert\operatorname{Re} a\rvert+\lvert\operatorname{Im} a\rvert}{2^{\frac{1}{2}}}$
76	$\left[\frac{1}{(s^4+a^4)^{\frac{1}{2}}}-\frac{s^2}{s^4+a^4}\right]^{\frac{1}{2}}$	$2^{\frac{1}{2}}\operatorname{bei}(at)$	$\operatorname{Re} s > \frac{\lvert\operatorname{Re} a\rvert+\lvert\operatorname{Im} a\rvert}{2^{\frac{1}{2}}}$

	g(s)	f(t)	
2(Contd.)			
Functions of $s,(s^2+a^2-1)$			
77	$\frac{1}{s}\left[\frac{[(s^2+a^2-1)^2+4s^2]^{\frac{1}{2}}+s^2+a^2-1}{(s^2+a^2-1)^2+4s^2}\right]^{\frac{1}{2}}$	$2^{\frac{1}{2}}\int_0^t J_0(au)\cos u\,du$	$\operatorname{Re} s > \lvert\operatorname{Im} a\rvert$
78	$\frac{1}{s}\left[\frac{[(s^2+a^2-1)^2+4s^2]^{\frac{1}{2}}-s^2-a^2+1}{(s^2+a^2-1)^2+4s^2}\right]^{\frac{1}{2}}$	$-2^{\frac{1}{2}}\int_0^t J_0(au)\sin u\,du$	$\operatorname{Re} s > \lvert\operatorname{Im} a\rvert$
Functions of $s,(s\pm a)$, $[(s\pm a)^{\frac{1}{2}}\pm s^{\frac{1}{2}}]$			
79	$[(s+a)^{\frac{1}{2}}-s^{\frac{1}{2}}]^{\nu}$	$\frac{\nu a^{\frac{\nu}{2}}}{2t}e^{-\frac{at}{2}}I_{\frac{\nu}{2}}(\frac{at}{2})$	$\operatorname{Re}\nu > 0$ $\operatorname{Re} s > \operatorname{Max} 0, -\operatorname{Re} a$
80	$\frac{s^{\frac{1}{2}}[(s+a)^{\frac{1}{2}}-s^{\frac{1}{2}}]^{\nu}}{(s+a)^{\frac{1}{2}}}$	$\frac{a^{\frac{\nu}{2}+1}e^{-\frac{at}{2}}}{2}\left[I'_{\frac{\nu}{2}}(\frac{at}{2})-I_{\frac{\nu}{2}}(\frac{at}{2})\right]$	$\operatorname{Re}\nu > 0$ $\operatorname{Re} s > \operatorname{Max} 0, -\operatorname{Re} a$
81	$\frac{[(s+a)^{\frac{1}{2}}-s^{\frac{1}{2}}]^{2\nu}}{s^{\frac{1}{2}}(s+a)^{\frac{1}{2}}}$	$a^{\nu}e^{-\frac{at}{2}}I_{\nu}(\frac{at}{2})$	$\operatorname{Re}\nu > -1$ $\operatorname{Re} s > \operatorname{Max} 0, -\operatorname{Re} a$
82	$\frac{[s^{\frac{1}{2}}-(s-a)^{\frac{1}{2}}]^{2\nu}}{s^{\frac{1}{2}}(s-a)^{\frac{1}{2}}}$	$a^{\nu}e^{\frac{at}{2}}I_{\nu}(\frac{at}{2})$	$\operatorname{Re}\nu > -1$ $\operatorname{Re} s > \operatorname{Max} 0, \operatorname{Re} a$
Functions of $[(s^2\pm a^2)^{\frac{1}{2}}\pm s]$ Only			
83	$[(s^2+a^2)^{\frac{1}{2}}-s]^{\frac{1}{2}}$	$\frac{\sin(at)}{(2\pi)^{\frac{1}{2}}t^{\frac{3}{2}}}$	$\operatorname{Re} s > \lvert\operatorname{Im} a\rvert$
84	$s-(s^2-a^2)^{\frac{1}{2}}$	$\frac{a}{t}I_1(at)$	$\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$
85	$[(s^2+a^2)^{\frac{1}{2}}-s]^{\nu}$	$\frac{a^{\nu}\nu J_{\nu}(at)}{t}$	$\operatorname{Re}\nu > 0$ $\operatorname{Re} s > \lvert\operatorname{Im} a\rvert$

	$g(s)$	$f(t)$	
2(Contd.)			
86	$[s-(s^2-a^2)^{\frac{1}{2}}]^{\nu}$	$\dfrac{\nu a^{\nu} I_{\nu}(at)}{t}$	$\mathrm{Re}\,\nu > 0$ $\mathrm{Re}\,s > \lvert \mathrm{Re}\,a \rvert$
Functions of $s, [(s^2 \pm a^2)^{\frac{1}{2}} \pm s]$ Only			
87	$s[(s^2+a^2)^{\frac{1}{2}}-s]^{\nu}$	$\dfrac{a^{\nu+1}\nu}{t} J_{\nu-1}(at) - \dfrac{a^{\nu}\nu(\nu+1)}{t^2} J_{\nu}(at)$	$\mathrm{Re}\,\nu > 1$ $\mathrm{Re}\,s > \lvert \mathrm{Im}\,a \rvert$
88	$s[s-(s^2-a^2)^{\frac{1}{2}}]^{\nu}$	$\dfrac{a^{\nu+1}\nu}{t} I_{\nu-1}(at) - \dfrac{a^{\nu}\nu(\nu+1)}{t^2} I_{\nu}(at)$	$\mathrm{Re}\,\nu > 1$ $\mathrm{Re}\,s > \lvert \mathrm{Re}\,a \rvert$
89	$\dfrac{[(s^2+a^2)^{\frac{1}{2}}-s]^{\nu}}{a^{\nu} s} - \dfrac{1}{s}$	$\nu\, Ji_{\nu}(at)$	$\mathrm{Re}\,\nu > 0$ $\mathrm{Re}\,s > 0$
90	$\dfrac{[s+(s^2-a^2)^{\frac{1}{2}}]^{\nu} + [s-(s^2-a^2)^{\frac{1}{2}}]^{\nu}}{s}$	$2a^{\nu}\left[\dfrac{\nu \sin \nu\pi}{\pi} Ki_{\nu}(at) + \cos \dfrac{\nu\pi}{2}\right]$	$\lvert \mathrm{Re}\,\nu \rvert < 1$ $\mathrm{Re}\,s > \lvert \mathrm{Re}\,a \rvert$
91	$\dfrac{[(s^2+a^2)^{\frac{1}{2}}+s]^{\nu} + \cos(\nu\pi)[(s^2+a^2)^{\frac{1}{2}}-s]^{\nu}}{s}$	$a^{\nu}[1+\cos(\nu\pi) - \nu\sin(\nu\pi) Yi_{\nu}(at)]$	$\lvert \mathrm{Re}\,\nu \rvert < 1$ $\mathrm{Re}\,s > \lvert \mathrm{Im}\,a \rvert$
Functions of $(s^2 \pm a^2)$, $[(s^2 \pm a^2)^{\frac{1}{2}} \pm s]$ Only			
92	$\dfrac{[s+(s^2+a^2)^{\frac{1}{2}}]^{\frac{1}{2}}}{(s^2+a^2)^{\frac{1}{2}}}$	$\left(\dfrac{2}{\pi t}\right)^{\frac{1}{2}} \cos(at)$ $= a^{\frac{1}{2}} J_{-\frac{1}{2}}(at)$	$\mathrm{Re}\,s > \lvert \mathrm{Im}\,a \rvert$
93	$\dfrac{[(s^2+a^2)^{\frac{1}{2}}-s]^{\frac{1}{2}}}{(s^2+a^2)^{\frac{1}{2}}}$	$\left(\dfrac{2}{\pi t}\right)^{\frac{1}{2}} \sin(at)$ $= a^{\frac{1}{2}} J_{\frac{1}{2}}(at)$	$\mathrm{Re}\,s > \lvert \mathrm{Im}\,a \rvert$

	$g(s)$	$f(t)$	
2(Contd.)			
94	$\left[\dfrac{(s^2-a^2)^{\frac{1}{2}}+s}{s^2-a^2}\right]^{\frac{1}{2}}$	$a^{\frac{1}{2}} I_{-\frac{1}{2}}(at)$ $= \left(\dfrac{2}{\pi t}\right)^{\frac{1}{2}} \cosh(at)$	$\mathrm{Re}\,s > \lvert \mathrm{Re}\,a \rvert$
95	$\dfrac{[s-(s^2-a^2)^{\frac{1}{2}}]^{\frac{1}{2}}}{(s^2-a^2)^{\frac{1}{2}}}$	$a^{\frac{1}{2}} I_{\frac{1}{2}}(at)$ $= \left(\dfrac{2}{\pi t}\right)^{\frac{1}{2}} \sinh(at)$	$\mathrm{Re}\,s > \lvert \mathrm{Re}\,a \rvert$
96	$\dfrac{[(s^2+a^2)^{\frac{1}{2}}-s]^{n+\frac{1}{2}}}{(s^2+a^2)^{\frac{1}{2}}}$	$(-1)^n a^{n+\frac{1}{2}} Y_{-n-\frac{1}{2}}(at)$ $= (-1)^n a^{n+\frac{1}{2}} H_{-n-\frac{1}{2}}(at)$	$n = 0,1,2,\ldots$ $\mathrm{Re}\,s > \lvert \mathrm{Im}\,a \rvert$
97	$\dfrac{[s-(s^2-a^2)^{\frac{1}{2}}]^{n+\frac{1}{2}}}{(s^2-a^2)^{\frac{1}{2}}}$	$a^{n+\frac{1}{2}} L_{-n-\frac{1}{2}}(at)$	$n = 0,1,2,\ldots$ $\mathrm{Re}\,s > \lvert \mathrm{Re}\,a \rvert$
98	$\dfrac{[(s^2+a^2)^{\frac{1}{2}}-s]^{\nu}}{(s^2+a^2)^{\frac{1}{2}}}$	$a^{\nu} J_{\nu}(at)$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\,s > \lvert \mathrm{Im}\,a \rvert$
99	$\dfrac{[s-(s^2-a^2)^{\frac{1}{2}}]^{\nu}}{(s^2-a^2)^{\frac{1}{2}}}$	$a^{\nu} I_{\nu}(at)$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\,s > \lvert \mathrm{Re}\,a \rvert$
100	$\dfrac{[s-(s^2-ia^2)^{\frac{1}{2}}]^{\nu}}{(s^2-ia^2)^{\frac{1}{2}}}$	$(ia)^{\nu} e^{-\frac{3i\pi\nu}{4}} [\mathrm{ber}_{\nu}(at) + i\,\mathrm{bei}_{\nu}(at)]$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\,s > \dfrac{\lvert \mathrm{Re}\,a \rvert}{2^{\frac{1}{2}}}$
101	$\dfrac{[(s^2+a^2)^{\frac{1}{2}}-s]^{\nu}\cos(\nu\pi) - [(s^2+a^2)^{\frac{1}{2}}+s]^{\nu}}{(s^2+a^2)^{\frac{1}{2}}}$	$a^{\nu}\sin(\nu\pi) Y_{\nu}(at)$	$\lvert \mathrm{Re}\,\nu \rvert < 1$ $\mathrm{Re}\,s > \lvert \mathrm{Im}\,a \rvert$

	$g(s)$	$f(t)$	
2(Contd.)			
102	$\dfrac{[(s^2+a^2)^{\frac{1}{2}}+s]^{\nu}-e^{i\nu\pi}[(s^2+a^2)^{\frac{1}{2}}-s]^{\nu}}{(s^2+a^2)^{\frac{1}{2}}}$	$-i\,a^{\nu}\sin(\nu\pi)H_{\nu}^{(2)}(at)$	$\lvert\mathrm{Re}\,\nu\rvert<1$ $\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$
103	$\dfrac{e^{-i\nu\pi}[(s^2+a^2)^{\frac{1}{2}}-s]^{\nu}-[(s^2+a^2)^{\frac{1}{2}}+s]^{\nu}}{(s^2+a^2)^{\frac{1}{2}}}$	$-i\,a^{\nu}\sin(\nu\pi)H_{\nu}^{(1)}(at)$	$\lvert\mathrm{Re}\,\nu\rvert<1$ $\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$
104	$\dfrac{[s+(s^2-a^2)^{\frac{1}{2}}]^{\nu}-[s-(s^2-a^2)^{\frac{1}{2}}]^{\nu}}{(s^2-a^2)^{\frac{1}{2}}}$	$\dfrac{2a^{\nu}}{\pi}\sin(\nu\pi)K_{\nu}(at)$	$\lvert\mathrm{Re}\,\nu\rvert<1$ $\mathrm{Re}\,s>\lvert\mathrm{Re}\,a\rvert$
105	$\dfrac{[s+(s^2-ia^2)^{\frac{1}{2}}]^{\nu}-[s-(s^2-ia^2)^{\frac{1}{2}}]^{\nu}}{(s^2-ia^2)^{\frac{1}{2}}}$	$\dfrac{2}{\pi}a^{\nu}e^{\frac{i\pi\nu}{4}}\sin(\nu\pi)\cdot$ $\cdot[\mathrm{ker}_{\nu}(at)+i\,\mathrm{kei}_{\nu}(at)]$	$\lvert\mathrm{Re}\,\nu\rvert<1$ $\mathrm{Re}\,s>\dfrac{\lvert\mathrm{Re}\,a\rvert}{2^{\frac{1}{2}}}$
Functions of $s,(s^2\pm a^2),\ [(s^2\pm a^2)^{\frac{1}{2}}\pm s]$ Only			
106	$\dfrac{[(s^2+a^2)^{\frac{1}{2}}+s]^{\frac{1}{2}}}{s(s^2+a^2)^{\frac{1}{2}}}$	$\dfrac{2}{a^{\frac{1}{2}}}C(at)$	$\mathrm{Re}\,s>0$
107	$\dfrac{[(s^2+a^2)^{\frac{1}{2}}-s]^{\frac{1}{2}}}{s(s^2+a^2)^{\frac{1}{2}}}$	$\dfrac{2}{a^{\frac{1}{2}}}S(at)$	$\mathrm{Re}\,s>0$
108	$\dfrac{1}{s}\left[\dfrac{(s^2+4)^{\frac{1}{2}}+s}{s(s^2+4)}\right]^{\frac{1}{2}}$	$2^{\frac{1}{2}}\displaystyle\int_0^t J_0(u)\cos u\,du$	$\mathrm{Re}\,s>0$
109	$\dfrac{1}{s}\left[\dfrac{(s^2+4)^{\frac{1}{2}}-s}{s(s^2+4)}\right]^{\frac{1}{2}}$	$-2^{\frac{1}{2}}\displaystyle\int_0^t J_0(u)\sin u\,du$	$\mathrm{Re}\,s>0$

	$g(s)$	$f(t)$	
2(Contd.)			
110	$\dfrac{s[(s^2+a^2)^{\frac{1}{2}}-s]}{(s^2+a^2)^{\frac{1}{2}}}$	$\dfrac{a^{\nu+1}}{2}[J_{\nu-1}(at)-J_{\nu+1}(at)]$	$\mathrm{Re}\,\nu>0$ $\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$
111	$\dfrac{s[s-(s^2-a^2)^{\frac{1}{2}}]^{\nu}}{(s^2-a^2)^{\frac{1}{2}}}$	$\dfrac{a^{\nu+1}}{2}[I_{\nu-1}(at)+I_{\nu+1}(at)]$	$\mathrm{Re}\,\nu>0$ $\mathrm{Re}\,s>\lvert\mathrm{Re}\,a\rvert$
112	$\left(\dfrac{2}{s}\right)^{\frac{1}{2}}-\left[\dfrac{s+(s^2+a^2)^{\frac{1}{2}}}{s^2+a^2}\right]^{\frac{1}{2}}$	$a^{\frac{1}{2}}H_{\frac{1}{2}}(at)$	$\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$
113	$\left[\dfrac{s+(s^2-a^2)^{\frac{1}{2}}}{s^2-a^2}\right]^{\frac{1}{2}}-\left(\dfrac{2}{s}\right)^{\frac{1}{2}}$	$a^{\frac{1}{2}}L_{\frac{1}{2}}(at)$	$\mathrm{Re}\,s>\lvert\mathrm{Re}\,a\rvert$
114	$\dfrac{1}{2^{\nu-\frac{1}{2}}s^{\nu+\frac{1}{2}}}-\dfrac{[(s^2+1)^{\frac{1}{2}}-s]^{\nu-\frac{1}{2}}}{(s^2+1)^{\frac{1}{2}}}$	$\left(\dfrac{2t}{\pi}\right)^{\frac{1}{2}}\displaystyle\int_0^{\frac{\pi}{2}}H_{\nu}(t\sin\theta)\sin^{1-\nu}\theta\,d\theta$	$\mathrm{Re}\,s>0$
115	$\dfrac{[s-(s^2-1)^{\frac{1}{2}}]^{\nu-\frac{1}{2}}}{(s^2-1)^{\frac{1}{2}}}-\dfrac{1}{2^{\nu-\frac{1}{2}}s^{\nu+\frac{1}{2}}}$	$\left(\dfrac{2t}{\pi}\right)^{\frac{1}{2}}\displaystyle\int_0^{\frac{\pi}{2}}L_{\nu}(t\sin\theta)\sin^{1-\nu}\theta\,d\theta$	$\mathrm{Re}\,s>1$
Functions of $[s\pm\nu(s^2\pm a^2)^{\frac{1}{2}}],\ [(s^2\pm a^2)^{\frac{1}{2}}\pm s]$			
116	$[\nu(s^2+a^2)^{\frac{1}{2}}+s][(s^2+a^2)^{\frac{1}{2}}-s]^{\nu}$	$\dfrac{a^{\nu}\nu(\nu^2-1)J_{\nu}(at)}{t^2}$	$\mathrm{Re}\,\nu>1$ $\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$
117	$[s+\nu(s^2-a^2)^{\frac{1}{2}}][s-(s^2-a^2)^{\frac{1}{2}}]^{\nu}$	$\dfrac{\nu a^{\nu}(\nu^2-1)I_{\nu}(at)}{t^2}$	$\mathrm{Re}\,\nu>1$ $\mathrm{Re}\,s>\lvert\mathrm{Re}\,a\rvert$
118	$\dfrac{[\nu(s^2+a^2)^{\frac{1}{2}}+s][(s^2+a^2)^{\frac{1}{2}}-s]^{\nu}}{(s^2+a^2)^{\frac{3}{2}}}$	$a^{\nu}t\,J_{\nu}(at)$	$\mathrm{Re}\,\nu>-2$ $\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$

	g(s)	f(t)	
2(Contd.)			
Integral Forms			
119	$\int_{-a}^{a} \frac{du}{[b^2+(s-u)^2]^{\frac{1}{2}}}$	$\frac{2\sinh(at)}{t} J_0(bt)$	Re s > Max |Re a|, |Im b|
120	$\int_{-a}^{a} \frac{du}{[b^2+(s+iu)^2]^{\frac{1}{2}}}$	$\frac{2\sin(at)}{t} J_0(bt)$	Re s > Max |Im a|, |Im b|
121	$\int_{-a}^{a} \frac{du}{(a^2-u^2)^{\frac{1}{2}}[b^2+(s+iu)^2]^{\frac{1}{2}}}$	$\pi J_0(at) J_0(bt)$	Re s > |Im a| + |Im b|
122	$\int_{-a}^{a} \left[\frac{a^2-u^2}{b^2+(s+iu)^2}\right]^{\frac{1}{2}} du$	$\frac{\pi a}{t} J_0(bt) J_1(at)$	Re s > |Im a| + |Im b|
123	$\int_{-1}^{1} \frac{(1-u^2)^{\nu} du}{[b^2+(s+iau)^2]^{\mu}}$	$\frac{2^{\mu+\nu}\pi^{\frac{1}{2}}\Gamma(\nu+1)}{a^{\nu+\frac{1}{2}} b^{\mu-\frac{1}{2}}\Gamma(2\mu)} t^{\mu-\nu-1} J_{\nu+\frac{1}{2}}(at) J_{\mu-\frac{1}{2}}(bt)$	Re μ > o Re s > |Im a| + |Im b|
124	$\int_{s}^{\infty} \frac{du}{[(u-a)(u-b)(u-c)]^{\frac{1}{2}}}$	$\frac{1}{\pi^{\frac{1}{2}} t}\left[\frac{e^{at}}{t^{\frac{1}{2}}} * e^{\frac{b+c}{2}t} I_0\left(\frac{b-c}{2}t\right)\right]$	Re s > Max Re a, Re b, Re c
125	$\int_{s}^{\infty} \frac{du}{(4u^3-1)^{\frac{1}{2}}}$	$\frac{\pi^{\frac{1}{2}} {}_0F_2\left[\frac{7}{6},\frac{5}{6};\frac{t^3}{108}\right]}{3\Gamma(\frac{7}{6})\Gamma(\frac{5}{6}) t^{\frac{1}{2}}}$	Re s > o
126	$\int_{s}^{\infty} \frac{u\,du}{(4u^3-1)^{\frac{1}{2}}}$	$\frac{\pi^{\frac{1}{2}} {}_0F_2\left[\frac{5}{6},\frac{1}{6};\frac{t^3}{108}\right]}{\Gamma(\frac{5}{6})\Gamma(\frac{1}{6}) t^{\frac{3}{2}}}$	Re s > o

	g(s)	f(t)	
2(Contd.)			
127	$\int_{s}^{\infty} \frac{du}{(u^4-a^4)^{\frac{1}{2}}}$	$\frac{1}{at}[J_0(at) * I_0(at)]$	Re s > |Re a|
Functions of $s^{\frac{1}{2}}$, $s^{\frac{3}{2}}$, $(s+a)^{\frac{1}{2}}$, $(s+b)$			
2.1 1	$\frac{1}{s^{\frac{1}{2}}(s-a)}$	$a^{-\frac{1}{2}} e^{at} \mathrm{Erf}(a^{\frac{1}{2}} t^{\frac{1}{2}})$	Re s > Max o, Re a
2	$\frac{s+a}{s^{\frac{3}{2}}}$	$\frac{1+2at}{(\pi t)^{\frac{1}{2}}}$	Re s > o
3	$\frac{1}{s^{\frac{3}{2}}(s-a)}$	$a^{-\frac{3}{2}} e^{at} \mathrm{Erf}(a^{\frac{1}{2}} t^{\frac{1}{2}}) - \frac{2t^{\frac{1}{2}}}{a\pi^{\frac{1}{2}}}$	Re s > Max o, Re a
4	$\frac{(s+a)^{\frac{1}{2}}}{s+b}$	$\frac{e^{-at}}{(\pi t)^{\frac{1}{2}}} + (a-b)^{\frac{1}{2}} e^{-bt} \mathrm{Erf}[(a-b)^{\frac{1}{2}} t^{\frac{1}{2}}]$	Re s > Max - Re a, - Re b
5	$\frac{1}{(s+a)(s+b)^{\frac{1}{2}}}$	$\frac{e^{-at}\mathrm{Erf}[(b-a)^{\frac{1}{2}} t^{\frac{1}{2}}]}{(b-a)^{\frac{1}{2}}}$	Re s > Max - Re a, - Re b
Functions of $s^{n+\frac{1}{2}}$, $(s+a)^n$, $(s+b)^{n+\frac{1}{2}}$			
6	$\frac{(1-s)^n}{s^{n+\frac{1}{2}}}$	$\frac{(2n)!}{2^n n!(\pi t)^{\frac{1}{2}}} He_{2n}[(2t)^{\frac{1}{2}}]$	n = 0,1,2,... Re s > o
7	$\frac{(\frac{1}{2}-s)^n}{s^{n+\frac{1}{2}}}$	$\frac{2^n}{\pi^{\frac{1}{2}}} \frac{n!}{2n!} t^{-\frac{1}{2}} He_{2n}(t^{\frac{1}{2}})$	n = 0,1,2,... Re s > o
8	$\frac{(\frac{1}{2}-s)^n}{s^{n+\frac{3}{2}}}$	$\frac{2^{n+1}}{\pi^{\frac{1}{2}}} \frac{n!}{(2n+1)!} He_{2n+1}(t^{\frac{1}{2}})$	n = 0,1,2,... Re s > o

		$g(s)$	$f(t)$	
2.1 (Contd.)	9	$\dfrac{(1-s)^n}{s^{n+m+\frac{1}{2}}}$	$\dfrac{n!}{\pi^{\frac{1}{2}}4^m(2m+2n)!}\sum_{k=0}^{m} a_k \dfrac{d^k}{dt^k}\left[t^{k-\frac{1}{2}}H_{2m+2n}(t^{\frac{1}{2}})\right]$ where a_k is defined by $H_{2m}(x) = \sum_{k=0}^{m} a_k x^{2k}$	$n, m = 0,1,2,\ldots$ $\operatorname{Re} s > 0$
	10	$\dfrac{(s-a)^n}{s^{\frac{1}{2}}(s+a)^{n+1}}$	$\dfrac{n!}{a^{\frac{1}{2}}2\pi i}\left\{[D_{-n-1}(-i2^{\frac{1}{2}}a^{\frac{1}{2}}t^{\frac{1}{2}})]^2 - D_{-n-1}(i2^{\frac{1}{2}}a^{\frac{1}{2}}t^{\frac{1}{2}})]^2\right\}$	$n = 0,1,2,\ldots$ $\operatorname{Re} s > 0$
	11	$\dfrac{1}{(s+a)^{n+\frac{1}{2}}}$	$\dfrac{t^{n-\frac{1}{2}}e^{-at}}{\pi^{\frac{1}{2}}\cdot\frac{1}{2}\cdot\frac{3}{2}\cdots(n-\frac{1}{2})}$	$n = 1,2,3,\ldots$ $\operatorname{Re} s > -\operatorname{Re} a$
	12	$\dfrac{(s-a)^n}{(s+a)^{n+\frac{1}{2}}}$	$\dfrac{D_{2n}(2a^{\frac{1}{2}}t^{\frac{1}{2}})}{(-2)^n\Gamma(n+\frac{1}{2})t^{\frac{1}{2}}}$	$n = 0,1,2,\ldots$ $\operatorname{Re} s > -\operatorname{Re} a$
	13	$\dfrac{(s-a)^n}{(s+a)^{n+\frac{3}{2}}}$	$\dfrac{D_{2n+1}(2a^{\frac{1}{2}}t^{\frac{1}{2}})}{2a^{\frac{1}{2}}(-2)^n\Gamma(n+\frac{3}{2})}$	$n = 0,1,2,\ldots$ $\operatorname{Re} s > -\operatorname{Re} a$
	14	$\dfrac{(s-a)^n}{(s-b)^{n+\frac{1}{2}}}$	$\dfrac{(-2)^n}{\pi^{\frac{1}{2}}}\dfrac{n!}{(2n)!}\dfrac{e^{bt}}{t^{\frac{1}{2}}}He_{2n}[2^{\frac{1}{2}}(a-b)^{\frac{1}{2}}t^{\frac{1}{2}}]$	$n = 0,1,2,\ldots$ $\operatorname{Re} s > \operatorname{Re} b$
	15	$\dfrac{(s-a)^n}{(s-b)^{n+\frac{3}{2}}}$	$(-2)^n\left[\dfrac{2}{\pi(a-b)}\right]^{\frac{1}{2}}\dfrac{n!}{(2n+1)!}e^{bt}He_{2n+1}[2^{\frac{1}{2}}(a-b)^{\frac{1}{2}}t^{\frac{1}{2}}]$	$n = 0,1,2,\ldots$ $\operatorname{Re} s > \operatorname{Re} b$

		$g(s)$	$f(t)$	
2.1 (Contd.)	16	$\dfrac{(s-a)^n}{(s-b)^{m+n+\frac{1}{2}}}$	$\dfrac{(-1)^n e^{bt}2^n}{(a-b)^m\pi^{\frac{1}{2}}t^{\frac{1}{2}}}\sum_{k=1}^{m}\binom{m}{k}\dfrac{(n+k)!2^k}{(2n+2k)!}\cdot He_{2n+2k}[2^{\frac{1}{2}}(a-b)^{\frac{1}{2}}t^{\frac{1}{2}}]$	$n = 0,1,2,\ldots$ $m = 1,2,3,\ldots$ $\operatorname{Re} s > \operatorname{Re} b$
17	17	$\dfrac{(s-a)^n}{(s-b)^{m+n+\frac{3}{2}}}$	$\dfrac{(-1)^n e^{bt}2^{n+\frac{1}{2}}}{(a-b)^m\pi^{\frac{1}{2}}}\sum_{k=1}^{m}\binom{m}{k}\dfrac{(n+k)!2^k}{(2n+2k+1)!}\cdot He_{2n+2k+1}[2^{\frac{1}{2}}(a-b)^{\frac{1}{2}}t^{\frac{1}{2}}]$	$n = 0,1,2,\ldots$ $m = 1,2,3,\ldots$ $\operatorname{Re} s > \operatorname{Re} b$
Functions of s^n, $s^{n+\nu}$, $(s+a)^n$, $(s+b)^{n+\nu}$				
	18	$\dfrac{s^n}{(s+a)^{n+\nu}}$	$\dfrac{n!}{\Gamma(n+\nu)}e^{-at}t^{\nu-1}L_n^{\nu-1}(at)$	$\operatorname{Re}\nu > 0$ $n = 0,1,2,\ldots$ $\operatorname{Re} s > -\operatorname{Re} a$
	19	$\dfrac{(s-a)^n}{s^{n+\nu}}$	$\dfrac{n!t^{\nu-1}}{\Gamma(n+\nu)}L_n^{\nu-1}(at)$ $= (-1)^n a^{1-\nu}n!T_{\nu-1}^{(n)}(at)$ $= \dfrac{t^{\frac{\nu}{2}-1}e^{\frac{at}{2}}M_{n+\frac{\nu}{2},\frac{\nu-1}{2}}(at)}{a^{\frac{\nu}{2}}\Gamma(\nu)}$	$\operatorname{Re}\nu > 0$ $n = 0,1,2,\ldots$ $\operatorname{Re} s > 0$
	20	$\dfrac{(s-a)^n}{(s-b)^{n+\nu}}$	$\dfrac{n!}{\Gamma(n+\nu)}t^{\nu-1}e^{bt}L_n^{\nu-1}[(a-b)t]$	$\operatorname{Re}\nu > 0$ $n = 0,1,2,\ldots$ $\operatorname{Re} s > \operatorname{Re} b$
	21	$\dfrac{1}{(s-b)(s+a)^{\nu}}$	$\dfrac{e^{bt}\gamma[\nu,(a+b)t]}{\Gamma(\nu)(a+b)^{\nu}}$	$\operatorname{Re}\nu > 0$ $\operatorname{Re} s > \operatorname{Max}\operatorname{Re} b, -\operatorname{Re} a$

		$g(s)$	$f(t)$	
2.1 (Contd.)	22	$\frac{[1+(a-1)s]^n}{s^{\mu}(1+as)^{n+\nu}}$	$\frac{n!\, t^{\frac{\mu+\nu-1}{2}}}{\Gamma(n+\nu)} \int_0^{\infty} e^{-au} J_{\mu+\nu-1}[2(tu)^{\frac{1}{2}}] \cdot L_n^{\nu-1}(u)\, u^{\frac{\nu-\mu-1}{2}}\, du$	$\mathrm{Re}(\mu+\nu) > 0$ $\mathrm{Re}\,\nu > 0$ $\mathrm{Re}\, s > \mathrm{Max}\, 0,\ -\mathrm{Re}\,\frac{1}{a}$

Functions of $s^{\frac{1}{2}}$, s, $(s+a)^{\frac{1}{2}}$, $(s+b)$

23	$\frac{1}{(s^{\frac{1}{2}}+a)^2}$	$1 - \frac{2at^{\frac{1}{2}}}{\pi^{\frac{1}{2}}} + (1-2a^2 t)e^{a^2 t}[\mathrm{Erf}(at^{\frac{1}{2}})-1]$	$\mathrm{Re}\, s > 0$ if $\mathrm{Re}\, a > 0$ $\mathrm{Re}\, s > \mathrm{Max}\, 0, \mathrm{Re}\, a^2$ if $\mathrm{Re}\, a < 0$
24	$\frac{1}{(s^{\frac{1}{2}}+a)^3}$	$\frac{2(a^2 t+1)t^{\frac{1}{2}}}{\pi^{\frac{1}{2}}} - at\, e^{a^2 t}(2a^2 t+3) \cdot \mathrm{Erfc}(at^{\frac{1}{2}})$	$\mathrm{Re}\, s > 0$ if $\mathrm{Re}\, a > 0$ $\mathrm{Re}\, s > \mathrm{Max}\, 0, \mathrm{Re}\, a^2$ if $\mathrm{Re}\, a < 0$
25	$\frac{1}{(s^{\frac{1}{2}}+a)^4}$	$\frac{t}{3}(4a^4 t^2+12a^2 t+3)e^{a^2 t}\mathrm{Erfc}(at^{\frac{1}{2}}) - \frac{2a^3}{3\pi^{\frac{1}{2}}} t^{\frac{3}{2}}(2a^2 t+5)$	$\mathrm{Re}\, s > 0$ if $\mathrm{Re}\, a > 0$ $\mathrm{Re}\, s > \mathrm{Max}\, 0, \mathrm{Re}\, a^2$ if $\mathrm{Re}\, a < 0$
26	$\frac{1}{s^{\frac{1}{2}}(s^{\frac{1}{2}}+a)^2}$	$\frac{2t^{\frac{1}{2}}}{\pi^{\frac{1}{2}}} - 2at\, e^{a^2 t}\mathrm{Erfc}(at^{\frac{1}{2}})$	$\mathrm{Re}\, s > 0$ if $\mathrm{Re}\, a > 0$ $\mathrm{Re}\, s > \mathrm{Max}\, 0, \mathrm{Re}\, a^2$ if $\mathrm{Re}\, a < 0$
27	$\frac{1}{s(s^{\frac{1}{2}}+a)^2}$	$\frac{1}{a^2} + (2t - \frac{1}{a^2})e^{a^2 t}\mathrm{Erfc}(at^{\frac{1}{2}}) - \frac{2t^{\frac{1}{2}}}{\pi^{\frac{1}{2}} a}$	$\mathrm{Re}\, s > 0$ if $\mathrm{Re}\, a > 0$ $\mathrm{Re}\, s > \mathrm{Max}\, 0, \mathrm{Re}\, a^2$ if $\mathrm{Re}\, a < 0$
28	$\frac{1}{s^{\frac{1}{2}}(s^{\frac{1}{2}}+a)^3}$	$(2at^2+1)t\, e^{a^2 t}\mathrm{Erfc}(at^{\frac{1}{2}}) - \frac{2at^{\frac{3}{2}}}{\pi^{\frac{1}{2}}}$	$\mathrm{Re}\, s > 0$ if $\mathrm{Re}\, a > 0$ $\mathrm{Re}\, s > \mathrm{Max}\, 0, \mathrm{Re}\, a^2$ if $\mathrm{Re}\, a < 0$

		$g(s)$	$f(t)$	
2.1 (Contd.)	29	$\frac{1}{s(s^{\frac{1}{2}}+a)^3}$	$\frac{1}{a^3} - (2at^2 - \frac{t}{a} + \frac{1}{a^3})e^{a^2 t}\mathrm{Erfc}(at^{\frac{1}{2}}) + 2(\frac{t}{\pi})^{\frac{1}{2}}(t - \frac{1}{a^2})$	$\mathrm{Re}\, s > 0$ if $\mathrm{Re}\, a > 0$ $\mathrm{Re}\, s > \mathrm{Max}\, 0, \mathrm{Re}\, a^2$ if $\mathrm{Re}\, a < 0$
	30	$\frac{s^{\frac{1}{2}}}{(s^{\frac{1}{2}}+a)^3}$	$(2a^4 t^2 + 5a^2 t+1)e^{a^2 t}\mathrm{Erfc}(at^{\frac{1}{2}}) - \frac{2at^{\frac{1}{2}}}{\pi^{\frac{1}{2}}}(a^2 t+2)$	$\mathrm{Re}\, s > 0$ if $\mathrm{Re}\, a > 0$ $\mathrm{Re}\, s > \mathrm{Max}\, 0, \mathrm{Re}\, a^2$ if $\mathrm{Re}\, a < 0$
	31	$\frac{1}{s}\left(\frac{s^{\frac{1}{2}}-a}{s^{\frac{1}{2}}+a}\right)^2$	$1+8a^2 t\, e^{a^2 t}\mathrm{Erfc}(at^{\frac{1}{2}}) - \frac{8at^{\frac{1}{2}}}{\pi^{\frac{1}{2}}}$	$\mathrm{Re}\, s > 0$ if $\mathrm{Re}\, a > 0$ $\mathrm{Re}\, s > \mathrm{Max}\, 0, \mathrm{Re}\, a^2$ if $\mathrm{Re}\, a < 0$
	32	$\frac{1}{s}\left(\frac{s^{\frac{1}{2}}-a}{s^{\frac{1}{2}}+a}\right)^3$	$2(8a^4 t^2 + 8a^2 t+1)e^{a^2 t}\mathrm{Erfc}(at^{\frac{1}{2}}) - \frac{8at^{\frac{1}{2}}}{\pi^{\frac{1}{2}}}(2a^2 t+1) - 1$	$\mathrm{Re}\, s > 0$ if $\mathrm{Re}\, a > 0$ $\mathrm{Re}\, s > \mathrm{Max}\, 0, \mathrm{Re}\, a^2$ if $\mathrm{Re}\, a < 0$
	33	$\frac{1}{s^{\frac{1}{2}}(s^{\frac{1}{2}}+a)(s-b^2)}$	$\frac{e^{a^2 t}\mathrm{Erfc}(at^{\frac{1}{2}})}{a^2-b^2} + \frac{a\, e^{b^2 t}\mathrm{Erf}(bt^{\frac{1}{2}})}{b(a^2-b^2)} - \frac{e^{b^2 t}}{a^2-b^2}$	$\mathrm{Re}\, s > \mathrm{Max}\, 0, \mathrm{Re}\, b^2$ if $\mathrm{Re}\, a > 0$ $\mathrm{Re}\, s > \mathrm{Max}\, 0, \mathrm{Re}\, b^2, \mathrm{Re}\, a^2$ if $\mathrm{Re}\, a < 0$
	34	$\frac{s^{\frac{1}{2}}}{(s^{\frac{1}{2}}+a)(s-b^2)}$	$\frac{a^2}{a^2-b^2}\, e^{a^2 t}\mathrm{Erfc}(at^{\frac{1}{2}}) + \frac{ab}{a^2-b^2}\, e^{b^2 t}\mathrm{Erfc}(bt^{\frac{1}{2}}) - \frac{b^2}{a^2-b^2}\, e^{b^2 t}$	$\mathrm{Re}\, s > \mathrm{Max}\, 0, \mathrm{Re}\, b^2$ if $\mathrm{Re}\, a > 0$ $\mathrm{Re}\, s > \mathrm{Max}\, 0, \mathrm{Re}\, b^2, \mathrm{Re}\, a^2$ if $\mathrm{Re}\, a < 0$

Functions Involving $[(s^2 \pm a^2)^{\frac{1}{2}} \pm s]$

35	$[(s^2+a^2)^{\frac{1}{2}}-s]^n$	$\frac{a^n n}{t} J_n(at)$	$n = 1, 2, 3, \ldots$ $\mathrm{Re}\, s > \lvert \mathrm{Im}\, a \rvert$

		g(s)	f(t)	
2.1 (Contd.)	36	$[s-(s^2-a^2)^{\frac{1}{2}}]^n$	$\dfrac{na^nI_n(at)}{t}$	$n=1,2,3,\ldots$ $\mathrm{Re}\, s > \lvert\mathrm{Re}\, a\rvert$
	37	$(s^2+a^2)^{\frac{m-1}{2}}[(s^2+a^2)^{\frac{1}{2}}-s]^n$	$\dfrac{1}{\pi}a^{m+n}\displaystyle\int_0^\pi (\cos u)^m \cos(nu-at\sin u)\,du$	$n>m-1$ $n,m=0,1,2,\ldots$ $\mathrm{Re}\, s>\lvert\mathrm{Im}\, a\rvert$
	36	$\dfrac{[s+\nu(s^2-a^2)^{\frac{1}{2}}][s-(s^2-a^2)^{\frac{1}{2}}]^\nu}{(s^2-a^2)^{\frac{3}{2}}}$	$a^\nu t I_\nu(at)$	$\mathrm{Re}\,\nu>-2$ $\mathrm{Re}\, s>\lvert\mathrm{Re}\, a\rvert$
	39	$\left\{\nu^2-1+\dfrac{3s[s+\nu(s^2+a^2)^{\frac{1}{2}}]}{s^2+a^2}\right\}\dfrac{[(s^2+a^2)^{\frac{1}{2}}-s]^\nu}{(s^2+a^2)^{\frac{3}{2}}}$	$a^\nu t^2 J_\nu(at)$	$\mathrm{Re}\,\nu>-3$ $\mathrm{Re}\, s>\lvert\mathrm{Im}\, a\rvert$
Miscellaneous				
	40	$\dfrac{1-(\frac{a}{s})^\nu}{s-a}$	$e^{at}\dfrac{\Gamma(\nu,at)}{\Gamma(\nu)}$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\, s>0$
	41	$\dfrac{s+a}{(s^2-b^2)(s+c)^\nu}$	$\dfrac{1}{2\Gamma(\nu)}\left\{(1+\frac{a}{b})e^{bt}\dfrac{\gamma[\nu,(b+c)t]}{(b+c)^\nu} + (1-\frac{a}{b})e^{-bt}\dfrac{\gamma[\nu,(c-b)t]}{(c-b)^\nu}\right\}$	$\mathrm{Re}\,\nu>0$ $\mathrm{Re}\, s>\mathrm{Max}-\mathrm{Re}\, c, \lvert\mathrm{Re}\, b\rvert$
	42	$\dfrac{1}{s^\nu(2s^2-2as+a^2)}$	$t^{\nu+1}\displaystyle\sum_{k=0}^{\infty}\dfrac{(-1)^k(2k)!L_{2k}^{(\nu+1)}(2at)}{\Gamma(2k+\nu+2)}$	$\mathrm{Re}\,\nu>-2$ $\mathrm{Re}\, s>\mathrm{Max}\, 0, \mathrm{Re}\,\frac{a}{2}+\lvert\mathrm{Im}\,\frac{a}{2}\rvert$
Functions of e^{-as} and s Only				
3	1	e^{-as}	$\delta(t-a)$	$a\geq 0$ $\mathrm{Re}\, s>0$

		g(s)	f(t)		
3(Contd.)	2	$\dfrac{e^{-as}}{s}$	0 1	$0<t<a$ $t>a$	$a\geq 0$ $\mathrm{Re}\, s>0$
Functions Containing s and One Term Only of the Type $(e^{\pm as}\pm b)$ or $(e^{-as}-e^{-bs})$					
	3	$\dfrac{1}{s(e^{as}+1)}$	0 1	$2na<t<(2n+1)a$ $(2n+1)a<t<(2n+2)a$	$a\geq 0$ $\mathrm{Re}\, s>0$ $n=0,1,2,\ldots$
	4	$\dfrac{1}{s(1+e^{-as})}$	1 0	$2na<t<(2n+1)a$ $(2n+1)a<t<(2n+2)a$	$a\geq 0$ $\mathrm{Re}\, s>0$ $n=0,1,2,\ldots$
	5	$\dfrac{1}{s(e^s-1)}$	$[t]$		$\mathrm{Re}\, s>0$
	6	$\dfrac{1}{s(e^{as}-1)}$	n	$na<t<(n+1)a$	$a>0$ $\mathrm{Re}\, s>0$ $n=0,1,2,\ldots$
	7	$\dfrac{1}{s(e^{bs}-a)}$	$\dfrac{1-a^n}{1-a}$	$nb<t<(n+1)b$	$b>0$ $\mathrm{Re}\, s>\mathrm{Max}\, 0, \frac{1}{b}\mathrm{Re}(\log a)$ $n=0,1,2,\ldots$
	8	$\dfrac{1}{s(1-e^{-as})}$	n+1	$na<t<(n+1)a$	$a>0$ $\mathrm{Re}\, s>0$ $n=0,1,2,\ldots$
	9	$\dfrac{1-e^{-as}}{s}$	1 0	$0<t<a$ $t>a$	$a>0$ $\mathrm{Re}\, s>-\infty$
	10	$\dfrac{e^{-as}-e^{-bs}}{s}$	0 1 0	$0<t<a$ $a<t<b$ $t>b$	$0\leq a<b$ $\mathrm{Re}\, s>-\infty$

3(Contd.)

Functions Containing s and Two Terms of the Type $(e^{\pm as} \pm b)$ or $(e^{\pm as} - e^{-bs})$

	g(s)	f(t)	
11	$\frac{1}{s(e^{s}-1)(e^{s}-a)}$	$\int \frac{a^{t}-1}{(a-1)^2} - \int \frac{t}{a-1}$	Re s > Max o, Re(log a)
12	$\frac{e^{s}-1}{s(e^{s}-a)}$	$\int a^{t}$	Re s > Re(log a)
13	$\frac{1-e^{-bs}}{s(1-e^{-as})}$	1 $na < t < na+b$ 0 $na+b < t < (n+1)a$	o < b < a Re s > −∞ n = 0,1,2,...
14	$\frac{1-e^{-as}}{s(1+e^{-as})}$	1 $2na < t < (2n+1)a$ −1 $(2n+1)a < t < (2n+2)a$	a > o Re s > o n = 0,1,2,...
15	$\frac{1-e^{-as}}{s(1+e^{as})}$	0 $0 < t < a$ 1 $(2n+1)a < t < (2n+2)a$ −1 $(2n+2)a < t < (2n+3)a$	a > o Re s > o n = 0,1,2,...
16	$\frac{1-e^{-as}}{s(e^{as}-e^{-as})}$	0 $2na < t < (2n+1)a$ 1 $(4n+1)a < t < (4n+2)a$ −1 $(4n+3)a < t < (4n+4)a$	a > o Re s > o n = 0,1,2,...
17	$\frac{4-e^{-as}}{s(2+e^{-as})}$	$1+(-1)^n 2^{-n}$ $na < t < (n+1)a$	a > o Re s > o n = 0,1,2,...
18	$\frac{(1-e^{-as})^2}{s}$	1 $0 < t < a$ −1 $a < t < 2a$ 0 $t > 2a$	a > o Re s > −∞

	g(s)	f(t)	
3(Contd.) 19	$\frac{(e^{-as}-e^{-bs})^2}{s}$	0 $0 < t < 2a$ 1 $2a < t < a+b$ −1 $a+b < t < 2b$ 0 $t > 2b$	0 ≤ a < b Re s > −∞

Functions Containing s and Three Terms of the Type $(e^{s} \pm a)$

20	$\frac{e^{s}+1}{s(e^{s}-1)^2}$	$\int t^2$	Re s > o
21	$\frac{e^{s}-1}{s(e^{s}-a)^2}$	$\int t\,a^{t-1}$	Re s > Re(log a)
22	$\frac{e^{s}-1}{s(e^{s}-a)(e^{s}-b)}$	$\int \frac{a^{t}-b^{t}}{a-b}$	a ≠ b Re s > Max Re(log a), Re(log b)

Functions Containing s and Four or Five Terms of the Type $(e^{s} \pm a)$

23	$\frac{e^{s}-1}{s(e^{s}-a)^3}$	$\frac{1}{2}\int t(t-1)a^{t-2}$	Re s > Re(log a)
24	$\frac{e^{s}-1}{s} \cdot \frac{e^{s}-(a+b)}{(e^{s}-a)(e^{s}-b)}$	$-\frac{ab}{a-b}\int a^{t-1}-b^{t-1}$	a ≠ b Re s > Max Re(log a), Re(log b)
25	$\frac{(e^{s}-1)[(c-d)e^{s}-cb+da]}{s(e^{s}-a)(e^{s}-b)}$	$\int ca^{t}-d\,b^{t}$	Re s > Max Re(log a), Re(log b)
26	$\frac{(e^{s}-1)(e^{s}+a)}{s(e^{s}-a)^3}$	$\int t^2 a^{t-1}$	Re s > Re(log a)

Functions Containing a Term of the Type $(e^{as}-b)^n$

27	$\frac{1}{s(e^{s}-1)^n}$	$\int \binom{t}{n}$	n = 0,1,2,... Re s > o

		$g(s)$	$f(t)$	
3(Contd.)	28	$\frac{e^{as}}{s(e^{s}-1)^{n}}$	$\left[\frac{\Gamma(t+a+1)}{n!\,\Gamma(t+a+1-n)}\right]$	$n=0,1,2,\ldots$ $a<n$ $\mathrm{Re}\, s>0$
	29	$\frac{e^{-as}}{s(e^{as}-1)^{m}}$	$\binom{n}{m}$ $na<t<(n+1)a$	$a>0$ $m=0,1,2,\ldots$ $\mathrm{Re}\, s>0$ $\underline{n=0,1,2,\ldots}$
	30	$\frac{e^{s}-1}{s(e^{s}-a)^{n+1}}$	$\left[\binom{t}{n}a^{t-n}\right]$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>\mathrm{Re}(\log a)$
Functions Containing $e^{\pm\frac{a}{s}}$				
	31	$\frac{e^{\frac{a}{s}}}{s}$	$I_0(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	$\mathrm{Re}\, s>0$
	32	$\frac{e^{-\frac{a}{s}}}{s}$	$J_0(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	$\mathrm{Re}\, s>0$
	33	$e^{\frac{a}{s}}-1$	$(\frac{a}{t})^{\frac{1}{2}}I_1(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	$\mathrm{Re}\, s>0$
	34	$1-e^{-\frac{a}{s}}$	$(\frac{a}{t})^{\frac{1}{2}}J_1(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	$\mathrm{Re}\, s>0$
	35	$\frac{1}{s(1-e^{-\frac{1}{s}})}$	$\sum_{n=0}^{\infty}J_0(2n^{\frac{1}{2}}t^{\frac{1}{2}})$	$\mathrm{Re}\, s>0$
Miscellaneous				
	36	$\frac{e^{-bs}-e^{-cs}+e^{-as}-e^{-ds}}{s(1-e^{-as})}$	0 $na<t<na+b$ and $na+c<t<na+d$ 1 $na+b<t<na+c$ -1 $na+d<t<(n+1)a$	$a>d>c>b>0$ $\mathrm{Re}\, s>0$ $\underline{n=0,1,2,\ldots}$

		$g(s)$	$f(t)$	
3(Contd.)	37	$\frac{e^{2s}+4e^{s}+1}{s(e^{s}-1)^{3}}$	$[t^{3}]$	$\mathrm{Re}\, s>0$
	38	$\frac{e^{3s}+11e^{2s}+11e^{s}+1}{s(e^{s}-1)^{4}}$	$[t^{4}]$	$\mathrm{Re}\, s>0$
	39	$\frac{e^{s}-1}{s(e^{2s}-2e^{s}\cos a+1)}$	$\left[\frac{\sin(at)}{\sin a}\right]$	$\mathrm{Re}\, s>\lvert \mathrm{Im}\, a\rvert$
	40	$\frac{e^{s}-1}{s(e^{2s}-2ae^{s}\cos b+a^{2})}$	$\frac{1}{a\sin b}\left[a^{t}\sin(bt)\right]$	$\mathrm{Re}\, s>\mathrm{Re}(\log a)+\lvert \mathrm{Im}\, b\rvert$
	41	$\frac{(e^{s}-1)(e^{s}-\cos a)}{s(e^{2s}-2e^{s}\cos a+1)}$	$[\cos(at)]$	$\mathrm{Re}\, s>\lvert \mathrm{Im}\, a\rvert$
	42	$\frac{(e^{s}-1)(e^{s}-a\cos b)}{s(e^{2s}-2ae^{s}\cos b+a^{2})}$	$\left[a^{t}\cos(bt)\right]$	$\mathrm{Re}\, s>\mathrm{Re}(\log a)+\lvert \mathrm{Im}\, b\rvert$
	43	$\frac{1-e^{-bs}}{(-b)^{m}s}\frac{d^{m}}{ds^{m}}\left(\frac{1}{1-e^{-bs}}\right)$	n^{m} $nb<t<(n+1)b$	$b>0$ $m=0,1,2,\ldots$ $\mathrm{Re}\, s>0$ $\underline{n=0,1,2,\ldots}$
Functions Containing e^{-as} Only				
3.1	1	$\frac{e^{-as}}{s+b}$	0 $0<t<a$ $e^{-b(t-a)}$ $t>a$	$a>0$ $\mathrm{Re}\, s>-\mathrm{Re}\, b$
	2	$\frac{e^{-as}}{s(s+b)}$	0 $0<t<a$ $\frac{1-e^{-b(t-a)}}{b}$ $t>a$	$\mathrm{Re}\, s>\mathrm{Max}\; 0,\ -\mathrm{Re}\, b$

		$g(s)$	$f(t)$	
3.1 (Contd.)	3	$\frac{s+c}{s^2+b^2}e^{-as}$	$0 \quad 0<t<a$; $\cos[b(t-a)]+\frac{c}{b}\sin[b(t-a)] \quad t>a$	$a>0$; $\operatorname{Re} s>\lvert\operatorname{Im} b\rvert$
	4	$\frac{s+c}{s^2-b^2}e^{-as}$	$0 \quad 0<t<a$; $\cosh[b(t-a)]+\frac{c}{b}\sinh[b(t-a)] \quad t>a$	$a>0$; $\operatorname{Re} s>\lvert\operatorname{Re} b\rvert$
	5	$\left(\frac{a}{s}+\frac{1}{s^2}\right)e^{-as}$	$0 \quad 0<t<a$; $t \quad t>a$	$a>0$; $\operatorname{Re} s>0$
	6	$\left(\frac{2}{s^3}+\frac{2a}{s^2}+\frac{a^2}{s}\right)e^{-as}$	$0 \quad 0<t<a$; $t^2 \quad t>a$	$a>0$; $\operatorname{Re} s>0$
	7	$\frac{e^{-as}+as-1}{s^2}$	$a-t \quad 0<t<a$; $0 \quad t>a$	$a>0$; $\operatorname{Re} s>-\infty$
	8	$e^{-\frac{\pi}{2}s}\frac{\frac{\pi}{2}(s^2+1)+2s}{(s^2+1)^2}$	$0 \quad 0<t<\frac{\pi}{2}$; $-t\cos t \quad t>\frac{\pi}{2}$	$\operatorname{Re} s>0$
	9	$\frac{e^{-\frac{\pi}{2}s}}{(1+s^2)^2}\left[\frac{\pi}{2}s(1+s^2)+s^2-1\right]$	$0 \quad 0<t<\frac{\pi}{2}$; $t\sin t \quad t>\frac{\pi}{2}$	$\operatorname{Re} s>0$
	10	$\frac{2s-e^{-\frac{\pi}{2}s}\left[\frac{\pi}{2}s(1+s^2)+s^2-1\right]}{(1+s^2)^2}$	$t\sin t \quad 0<t<\frac{\pi}{2}$; $0 \quad t>\frac{\pi}{2}$	$\operatorname{Re} s>-\infty$
	11	$\frac{s^2-1+e^{-\frac{\pi}{2}s}\left[\frac{\pi}{2}(s^2+1)+2s\right]}{(s^2+1)^2}$	$t\cos t \quad 0<t<\frac{\pi}{2}$; $0 \quad t>\frac{\pi}{2}$	$\operatorname{Re} s>-\infty$

		$g(s)$	$f(t)$	
3.1 (Contd.)	12	$\frac{e^{-\frac{\pi}{2}s}}{s(s^2+2^2)(s^2+4^2)\ldots(s^2+4n^2)}$	$0 \quad 0<t<\frac{\pi}{2}$; $\frac{\cos^{2n}t}{(2n)!} \quad t>\frac{\pi}{2}$	$n=1,2,3,\ldots$; $\operatorname{Re} s>0$
	13	$\frac{e^{-\frac{\pi}{2}s}}{[s^2+1^2][s^2+3^2]\ldots[s^2+(2n+1)^2]}$	$0 \quad 0<t<\frac{\pi}{2}$; $-\frac{\cos^{2n+1}t}{(2n+1)!} \quad t>\frac{\pi}{2}$	$n=0,1,2,\ldots$; $\operatorname{Re} s>0$
	14	$\frac{1-e^{-\frac{\pi}{2}s}\left\{1+\frac{s^2}{2!}+\ldots+\frac{s^2[s^2+2^2]\ldots[s^2+(2n-2)^2]}{(2n)!}\right\}}{s[s^2+2^2][s^2+4^2]\ldots[s^2+(2n)^2]}$	$\frac{\sin^{2n}t}{(2n)!} \quad 0<t<\frac{\pi}{2}$; $0 \quad t>\frac{\pi}{2}$	$n=1,2,3,\ldots$; $\operatorname{Re} s>-\infty$
	15	$\frac{1-se^{-\frac{\pi}{2}s}\left\{1+\frac{s^2+1^2}{3!}+\ldots+\frac{[s^2+1^2][s^2+3^2]\ldots[s^2+(2n-1)^2]}{(2n+1)!}\right\}}{[s^2+1^2][s^2+3^2]\ldots[s^2+(2n+1)^2]}$	$\frac{\sin^{2n+1}t}{(2n+1)!} \quad 0<t<\frac{\pi}{2}$; $0 \quad t>\frac{\pi}{2}$	$n=1,2,3,\ldots$; $\operatorname{Re} s>-\infty$
	16	$\frac{e^{-\frac{\pi}{2}s}+s\left\{1+\frac{s^2+1^2}{3!}+\ldots+\frac{[s^2+1^2][s^2+3^2]\ldots[s^2+(2n-1)^2]}{(2n+1)!}\right\}}{[s^2+1^2][s^2+3^2]\ldots[s^2+(2n+1)^2]}$	$\frac{\cos^{2n+1}t}{(2n+1)!} \quad 0<t<\frac{\pi}{2}$; $0 \quad t>\frac{\pi}{2}$	$n=1,2,3,\ldots$; $\operatorname{Re} s>-\infty$
	17	$\frac{-e^{-\frac{\pi}{2}s}+1+\frac{s^2}{2!}+\ldots+\frac{s^2[s^2+2^2]\ldots[s^2+4(n-1)^2]}{(2n)!}}{s(s^2+2^2)(s^2+4^2)\ldots(s^2+4n^2)}$	$\cos^{2n}t \quad 0<t<\frac{\pi}{2}$; $0 \quad t>\frac{\pi}{2}$	$n=1,2,3,\ldots$; $\operatorname{Re} s>-\infty$
	18	$\frac{1+\frac{s^2}{2!}+\frac{s^2[s^2+2^2]}{4!}+\ldots+\frac{s^2[s^2+2^2]\ldots[s^2+(2n-2)^2]}{(2n)!}}{e^{\frac{\pi}{2}s}s[s^2+2^2][s^2+4^2]\ldots[s^2+(2n)^2]}$	$0 \quad 0<t<\frac{\pi}{2}$; $\frac{\sin^{2n}t}{(2n)!} \quad t>\frac{\pi}{2}$	$n=1,2,3,\ldots$; $\operatorname{Re} s>0$

3.1 (Contd.)

No.	$g(s)$	$f(t)$	
19	$\dfrac{se^{-\frac{\pi}{2}s}\left\{1+\dfrac{s^2+1^2}{3!}+\dots+\dfrac{(s^2+1^2)(s^2+3^2)\dots[s^2+(2n-1)^2]}{(2n+1)!}\right\}}{[s^2+1^2][s^2+3^2]\dots[s^2+(2n+1)^2]}$	$\begin{cases}0 & 0<t<\frac{\pi}{2}\\ \dfrac{\sin^{2n+1}t}{(2n+1)!} & t>\frac{\pi}{2}\end{cases}$	$n=0,1,2,\dots$ $\mathrm{Re}\,s>0$
20	$e^{-as}\sum_{m=0}^{n}\dfrac{1}{m!}\dfrac{a^m}{s^{n-m+1}}$	$\begin{cases}0 & 0<t<a\\ \dfrac{t^n}{n!} & t>a\end{cases}$	$a>0$ $n=0,1,2,\dots$ $\mathrm{Re}\,s>0$
21	$\dfrac{1}{s^{n+1}}-e^{-as}\sum_{m=0}^{n}\dfrac{1}{m!}\dfrac{a^m}{s^{n-m+1}}$	$\begin{cases}\dfrac{t^n}{n!} & 0<t<a\\ 0 & t>a\end{cases}$	$a>0$ $n=0,1,2,\dots$ $\mathrm{Re}\,s>-\infty$
22	$\dfrac{e^{-as}[c\cos(ac)+s\sin(ac)]-e^{-bs}[c\cos(bc)+s\sin(bc)]}{s^2+c^2}$	$\begin{cases}0 & 0<t<a\\ \sin(ct) & a<t<b\\ 0 & t>b\end{cases}$	$0\leq a<b$ $\mathrm{Re}\,s>-\infty$
23	$\dfrac{e^{-as}[s\cos(ac)-c\sin(ac)]-e^{-bs}[s\cos(bc)-c\cos(bc)]}{s^2+c^2}$	$\begin{cases}0 & 0<t<a\\ \cos(ct) & a<t<b\\ 0 & t>b\end{cases}$	$0\leq a<b$ $\mathrm{Re}\,s>-\infty$
24	$\dfrac{e^{-as}[c\cosh(ac)+s\sinh(ac)]-e^{-bs}[c\cosh(bc)+s\sinh(bc)]}{s^2-c^2}$	$\begin{cases}0 & 0<t<a\\ \sinh(ct) & a<t<b\\ 0 & t>b\end{cases}$	$0\leq a<b$ $\mathrm{Re}\,s>-\infty$
25	$\dfrac{e^{-as}[s\cosh(ac)+c\sinh(ac)]-e^{-bs}[s\cosh(bc)+c\sinh(bc)]}{s^2-c^2}$	$\begin{cases}0 & 0<t<a\\ \cosh(ct) & a<t<b\\ 0 & t>b\end{cases}$	$0\leq a<b$ $\mathrm{Re}\,s>-\infty$

3.1 (Contd.)

No.	$g(s)$	$f(t)$	
26	$\dfrac{e^{-as}}{s^2+4c^2}\left[\dfrac{2c^2}{s}+s\sin^2(ac)+c\sin(2ac)\right]-\dfrac{e^{-bs}}{s^2+4c^2}\left[\dfrac{2c^2}{s}+s\sin^2(bc)+c\sin(2bc)\right]$	$\begin{cases}0 & 0<t<a\\ \sin^2(ct) & a<t<b\\ 0 & t>b\end{cases}$	$0\leq a<b$ $\mathrm{Re}\,s>-\infty$
27	$\dfrac{e^{-as}}{s^2+4c^2}\left[\dfrac{2c^2}{s}+s\cos^2(ac)-c\sin(2ac)\right]-\dfrac{e^{-bs}}{s^2+4c^2}\left[\dfrac{2c^2}{s}+s\cos^2(bc)-c\sin(2bc)\right]$	$\begin{cases}0 & 0<t<a\\ \cos^2(ct) & a<t<b\\ 0 & t>b\end{cases}$	$0\leq a<b$ $\mathrm{Re}\,s>-\infty$
28	$\dfrac{e^{-as}}{s^2-4c^2}\left[s\sinh^2(ac)+\dfrac{2c^2}{s}+c\sinh(2ac)\right]-\dfrac{e^{-bs}}{s^2-4c^2}\left[s\sinh^2(bc)+\dfrac{2c^2}{s}+c\sinh(2bc)\right]$	$\begin{cases}0 & 0<t<a\\ \sinh^2(ct) & a<t<b\\ 0 & t>b\end{cases}$	$0\leq a<b$ $\mathrm{Re}\,s>-\infty$
29	$\dfrac{e^{-as}}{s^2-4c^2}\left[s\cosh^2(ac)-\dfrac{2c^2}{s}+c\sinh(2ac)\right]-\dfrac{e^{-bs}}{s^2-4c^2}\left[s\cosh^2(bc)-\dfrac{2c^2}{s}+c\sinh(2bc)\right]$	$\begin{cases}0 & 0<t<a\\ \cosh^2(ct) & a<t<b\\ 0 & t>b\end{cases}$	$0\leq a<b$ $\mathrm{Re}\,s>-\infty$

Functions Containing One Term Only of the Type $(e^{\pm as}\pm b)$

No.	$g(s)$	$f(t)$	
30	$\dfrac{1-e^{-2n\pi s}}{s-i}$	$\begin{cases}e^{it} & 0<t<2n\pi\\ 0 & t>2n\pi\end{cases}$	$n=1,2,3,\dots$ $\mathrm{Re}\,s>-\infty$
31	$\dfrac{1-e^{-as}}{s^2}$	$\begin{cases}t & 0<t<a\\ a & t>a\end{cases}$	$a>0$ $\mathrm{Re}\,s>0$
32	$\dfrac{1+e^{-\pi s}}{s^2+1}$	$\begin{cases}\sin t & 0<t<\pi\\ 0 & t>\pi\end{cases}$	$\mathrm{Re}\,s>-\infty$

3.1 (Contd.)

	g(s)	f(t)		
33	$\frac{1-e^{-b\pi s}}{s^2+a^2}$	$\frac{\sin(at)}{a}$ 0	$0<t<b\pi$ $t>b\pi$	$a>0$ $b>0$ $\mathrm{Re}\, s>-\infty$
34	$\frac{s(1+e^{-\pi s})}{s^2+1}$	$\cos t$ 0	$0<t<\pi$ $t>\pi$	$\mathrm{Re}\, s>-\infty$
35	$\frac{s}{s^2+a^2}(1-e^{-b\pi s})$	$\cos(at)$ 0	$0<t<b\pi$ $t>b\pi$	$a>0$ $b>0$ $\mathrm{Re}\, s>-\infty$
36	$\frac{1-e^{-b\pi s}}{s(s^2+a^2)}$	$\frac{2\sin^2(\frac{at}{2})}{a^2}$ 0	$0<t<b\pi$ $t>b\pi$	$b>0$ $\mathrm{Re}\, s>-\infty$
37	$\frac{2s^2+a^2}{s(s^2+a^2)}(1-e^{-\frac{2n\pi s}{a}})$	$2\cos^2\frac{at}{2}$ 0	$0<t<\frac{2n\pi}{a}$ $t>\frac{2n\pi}{a}$	$a>0$ $n=1,2,3,\ldots$ $\mathrm{Re}\, s>-\infty$
38	$\frac{(1-e^{-\frac{2n\pi s}{b}})(b\cos a+s\sin a)}{s^2+b^2}$	$\sin(bt+a)$ 0	$0<t<\frac{2n\pi}{b}$ $t>\frac{2n\pi}{b}$	$b>0$ $n=1,2,3,\ldots$ $\mathrm{Re}\, s>-\infty$
39	$\frac{(1-e^{-\frac{2n\pi s}{b}})(s\cos a-b\sin a)}{s^2+b^2}$	$\cos(bt+a)$ 0	$0<t<\frac{2n\pi}{b}$ $t>\frac{2n\pi}{b}$	$b>0$ $n=1,2,3,\ldots$ $\mathrm{Re}\, s>-\infty$
40	$\frac{1-e^{-m\pi s}}{s(s^2+2^2)(s^2+4^2)\ldots(s^2+4n^2)}$	$\frac{\sin^{2n}t}{(2n)!}$ 0	$0<t<m\pi$ $t>m\pi$	$n,m=1,2,3,\ldots$ $\mathrm{Re}\, s>-\infty$

3.1 (Contd.)

	g(s)	f(t)		
41	$\frac{1-(-1)^m e^{-m\pi s}}{[s^2+1^2][s^2+3^2]\ldots[s^2+(2n+1)^2]}$	$\frac{\sin^{2n+1}t}{(2n+1)!}$ 0	$0<t<m\pi$ $t>m\pi$	$n=0,1,2,\ldots$ $m=1,2,3,\ldots$ $\mathrm{Re}\, s>-\infty$
42	$\frac{1}{s^2(e^s-1)}$	$\frac{1}{2}\,[\,t(t-1)$		$\mathrm{Re}\, s>0$
43	$\frac{1}{s^2(e^{as}+1)}$	$\frac{1}{4}[1-(-1)^n](2t-a)+\frac{1}{2}(-1)^n an$	$na<t<(n+1)a$	$a>0$ $\mathrm{Re}\, s>0$ $n=0,1,2,\ldots$
44	$\frac{1}{s^2(e^{as}-1)}$	$nt-\frac{1}{2}an(n+1)$	$na<t<(n+1)a$	$a>0$ $\mathrm{Re}\, s>0$ $n=0,1,2,\ldots$
45	$\frac{1}{s^2(e^{bs}-a)}$	$\frac{1-a^n}{1-a}t-b\,\frac{1-(n+1)a^n+na^{n+1}}{(1-a)^2}$	$nb<t<(n+1)b$	$b>0$ $\mathrm{Re}\, s>\mathrm{Max}\, 0,\frac{1}{b}\,\mathrm{Re}(\log a)$ $n=0,1,2,\ldots$
46	$\frac{1}{s^2+a^2}\cdot\frac{1}{e^{\frac{\pi}{a}s}-1}$	0 $-\frac{1}{a}\sin at$	$\frac{2n\pi}{a}<t<\frac{(2n+1)\pi}{a}$ $\frac{(2n+1)\pi}{a}<t<\frac{(2n+2)\pi}{a}$	$a>0$ $\mathrm{Re}\, s>0$ $n=0,1,2,\ldots$
47	$\frac{1}{s^2+a^2}\cdot\frac{1}{1-e^{-\frac{\pi}{a}s}}$	$\frac{1}{a}\sin at$ 0	$\frac{2n\pi}{a}<t<\frac{(2n+1)\pi}{a}$ $\frac{(2n+1)\pi}{a}<t<\frac{(2n+2)\pi}{a}$	$a>0$ $\mathrm{Re}\, s>0$ $n=0,1,2,\ldots$
48	$\frac{1}{(s^2+a^2)(1+e^{-b\pi s})}$	$\frac{\sin(at)}{a}$ 0	$2nb\pi<t<(2n+1)b\pi$ $(2n+1)b\pi<t<(2n+2)b\pi$	$b>0$ $\mathrm{Re}\, s>\lvert \mathrm{Im}\, a\rvert$ $n=0,1,2,\ldots$

3.1 (Contd.)

No.	g(s)	f(t)	
49	$\dfrac{1}{s(s^2+a^2)(1+e^{-b\pi s})}$	$\begin{cases} \dfrac{2\sin^2\frac{at}{2}}{a^2} & 2nb\pi < t < (2n+1)b\pi \\ 0 & (2n+1)b\pi < t < (2n+2)b\pi \end{cases}$	$b>0$, $\mathrm{Re}\, s > \lvert \mathrm{Im}\, a \rvert$, $n=0,1,2,\ldots$
50	$\dfrac{s}{(s^2+a^2)(1+e^{-b\pi s})}$	$\begin{cases} \cos(at) & 2nb\pi < t < (2n+1)b\pi \\ 0 & (2n+1)b\pi < t < (2n+2)b\pi \end{cases}$	$b>0$, $\mathrm{Re}\, s > \lvert \mathrm{Im}\, a \rvert$, $n=0,1,2,\ldots$
51	$\dfrac{2s^2+a^2}{s(s^2+a^2)(1+e^{-b\pi s})}$	$\begin{cases} 2\cos^2\frac{at}{2} & 2nb\pi < t < (2n+1)b\pi \\ 0 & (2n+1)b\pi < t < (2n+2)b\pi \end{cases}$	$b>0$, $\mathrm{Re}\, s > \lvert \mathrm{Im}\, a \rvert$, $n=0,1,2,\ldots$
52	$\dfrac{2}{s^3} - \dfrac{a(a+2s)}{s^2(e^{as}-1)}$	$(t-na)^2 \quad na < t < (n+1)a$	$a>0$, $\mathrm{Re}\, s > 0$, $n=0,1,2,\ldots$

Functions Containing $e^{\pm as}$ and One Term Only of the Type $(e^{\pm as} \pm b)$

No.	g(s)	f(t)	
53	$\dfrac{e^{-as}+as-1}{s^2(1-e^{-as})}$	$a(n+1)-t \quad na < t < (n+1)a$	$a>0$, $\mathrm{Re}\, s > 0$, $n=0,1,2,\ldots$
54	$\dfrac{as+1-e^{as}}{s^2(1-e^{as})}$	$t-na \quad na < t < (n+1)a$	$a>0$, $\mathrm{Re}\, s > 0$, $n=0,1,2,\ldots$
55	$\dfrac{1-(1+as)e^{-as}}{s^2(1-e^{-2as})}$	$\begin{cases} t-2na & 2na < t < (2n+1)a \\ 0 & (2n+1)a < t < (2n+2)a \end{cases}$	$a>0$, $\mathrm{Re}\, s > 0$, $n=0,1,2,\ldots$

3.1 (Contd.)

No.	g(s)	f(t)	
56	$\dfrac{1-(1+bs)e^{-bs}}{s^2(1-e^{-as})}$	$\begin{cases} \frac{a}{b}(t-na) & na < t < na+b \\ 0 & na+b < t < (n+1)a \end{cases}$	$0 < b \leq a$, $\mathrm{Re}\, s > 0$, $n=0,1,2,\ldots$
57	$\dfrac{1-e^{-bs}-bse^{-as}}{s^2(1-e^{-as})}$	$\begin{cases} t-na & na < t < na+b \\ b & na+b < t < (n+1)a \end{cases}$	$0 < b \leq a$, $\mathrm{Re}\, s > 0$, $n=0,1,2,\ldots$
58	$\dfrac{1-e^{-bs}-bse^{-as}}{s^2(1-e^{-2as})}$	$\begin{cases} t-2na & 2na < t < 2na+b \\ b & 2na+b < t < (2n+1)a \\ 0 & (2n+1)a < t < (2n+2)a \end{cases}$	$0 < b \leq a$, $\mathrm{Re}\, s > 0$, $n=0,1,2,\ldots$
59	$\dfrac{1-e^{-cs}-cse^{-bs}}{s^2(1-e^{-as})}$	$\begin{cases} t-na & na < t < na+c \\ c & na+c < t < na+b \\ 0 & na+b < t < (n+1)a \end{cases}$	$0 < c \leq b \leq a$, $\mathrm{Re}\, s > 0$, $n=0,1,2,\ldots$
60	$\dfrac{1-e^{-cs}-e^{-(b-c)s}+e^{-bs}}{s^2(1-e^{-as})}$	$\begin{cases} t-na & na < t < na+c \\ c & na+c < t < na+b-c \\ b+na-t & na+b-c < t < na+b \\ 0 & na+b < t < (n+1)a \end{cases}$	$0 < c < b < a$, $\mathrm{Re}\, s > 0$, $n=0,1,2,\ldots$
61	$\dfrac{1}{s^2+a^2}\left(\dfrac{s}{a}+\dfrac{2e^{-\frac{\pi s}{2a}}}{1-e^{-\frac{\pi s}{a}}}\right)$	$\frac{1}{a}\lvert \cos at \rvert$	$\mathrm{Re}\, s > \lvert \mathrm{Im}\, a \rvert$
62	$\dfrac{se^{-as}(1-e^{-2n\pi s})}{s^2+1}$	$\begin{cases} 0 & 0 < t < a \\ \cos(t-a) & a < t < a+2n\pi \\ 0 & t > a+2n\pi \end{cases}$	$n=1,2,3,\ldots$, $a>0$, $\mathrm{Re}\, s > -\infty$

		g(s)	f(t)		
3.1 (Contd.)	63	$\dfrac{e^{-\frac{2n\pi s}{a}}(1-e^{-\frac{\pi s}{a}})}{s(s^2+a^2)}$	0	$0<t<\frac{2n\pi}{a}$	$a>0$
			$\frac{2}{a^2}\sin^2\frac{at}{2}$	$\frac{2n\pi}{a}<t<\frac{(2n+1)\pi}{a}$	$n=1,2,3,\ldots$
			0	$t>\frac{(2n+1)\pi}{a}$	$\mathrm{Re}\,s>-\infty$
	64	$\dfrac{2s^2+a^2}{s(s^2+a^2)}e^{-\frac{2n\pi s}{a}}(1-e^{-\frac{\pi s}{a}})$	0	$0<t<\frac{2n\pi}{a}$	$a>0$
			$2\cos^2\frac{at}{2}$	$\frac{2n\pi}{a}<t<\frac{(2n+1)\pi}{a}$	$n=1,2,3,\ldots$
			0	$t>\frac{(2n+1)\pi}{a}$	$\mathrm{Re}\,s>-\infty$
	65	$\dfrac{e^{-\frac{\pi}{2}s}(1-e^{-m\pi s})}{s(s^2+2^2)(s^2+4^2)\cdots(s^2+4n^2)}$	0	$0<t<\frac{\pi}{2}$	$n,m=1,2,3,\ldots$
			$\frac{\cos^{2n}t}{(2n)!}$	$\frac{\pi}{2}<t<(m+\frac{1}{2})\pi$	$\mathrm{Re}\,s>-\infty$
			0	$t>(m+\frac{1}{2})\pi$	

Functions Containing Two Terms of the Type $(1\pm e^{-as})$

66	$\dfrac{(1-e^{-as})^2}{s^2}$	t	$0<t<a$	$a>0$
		$2a-t$	$a<t<2a$	$\mathrm{Re}\,s>-\infty$
		0	$t>2a$	
67	$\dfrac{1-e^{-as}}{s^2(1+e^{-as})}$	$t-2na$	$2na<t<(2n+1)a$	$a>0$
		$2a(n+1)-t$	$(2n+1)a<t<(2n+2)a$	$\mathrm{Re}\,s>0$
				$n=0,1,2,\ldots$
68	$\dfrac{1}{s^2}\left[\dfrac{a(1-e^{-bs})}{b(1-e^{-as})}-1\right]$	$\frac{a-b}{b}(t-na)$	$na<t<na+b$	$0<b\le a$
		$(n+1)a-t$	$na+b<t<(n+1)a$	$\mathrm{Re}\,s>0$
				$n=0,1,2,\ldots$

		g(s)	f(t)		
3.1 (Contd.)	69	$\dfrac{2(1-e^{-as})}{s^2(1+e^{-as})}-\dfrac{a}{s}$	$2t-a(4n+1)$	$2na<t<(2n+1)a$	$a>0$
			$a(4n+3)-2t$	$(2n+1)a<t<(2n+2)a$	$\mathrm{Re}\,s>0$
					$n=0,1,2,\ldots$
	70	$\dfrac{2}{as^2}-\dfrac{1+e^{-as}}{s(1-e^{-as})}$	$\frac{2t}{a}-2n-1$	$na<t<(n+1)a$	$a>0$
					$\mathrm{Re}\,s>0$
					$n=0,1,2,\ldots$
	71	$\dfrac{1}{s^2+a^2}\cdot\dfrac{1+e^{-\frac{\pi s}{a}}}{1-e^{-\frac{\pi s}{a}}}$	$\dfrac{\lvert\sin(at)\rvert}{a}$		$\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$
	72	$\dfrac{s}{s^2+a^2}\cdot\dfrac{1+e^{-\frac{\pi s}{a}}}{1-e^{-\frac{\pi s}{a}}}$	$\cos(at)$	$2n\pi<at<(2n+1)\pi$	$a>0$
			$-\cos(at)$	$(2n+1)\pi<at<(2n+2)\pi$	$\mathrm{Re}\,s>0$
					$n=0,1,2,\ldots$

Functions Containing Three Terms of the Type $(1-e^{-as})$

73	$\dfrac{(1-e^{-as})^2}{s^2(1-e^{-4as})}$	$t-4na$	$4na<t<(4n+1)a$	$a>0$
		$4na+2a-t$	$(4n+1)a<t<(4n+2)a$	$\mathrm{Re}\,s>0$
		0	$(4n+2)a<t<(4n+4)a$	$n=0,1,2,\ldots$
74	$\dfrac{(1-e^{-\frac{bs}{2}})^2}{s^2(1-e^{-as})}$	$t-na$	$na<t<na+\frac{b}{2}$	$0<b\le a$
		$b+na-t$	$na+\frac{b}{2}<t<na+b$	$\mathrm{Re}\,s>0$
		0	$na+b<t<(n+1)a$	$n=0,1,2,\ldots$
75	$\dfrac{(1-e^{-bs})[1-e^{-(2-\frac{b}{a})as}]}{s^2(1-e^{-4as})}$	$t-4na$	$4na<t<4na+b$	$0<b\le a$
		b	$4na+b<t<(4n+2)a-b$	$\mathrm{Re}\,s>0$
		$(4n+2)a-t$	$(4n+2)a-b<t<(4n+2)a$	$n=0,1,2,\ldots$
		0	$(4n+2)a<t<(4n+4)a$	

		g(s)	f(t)		
3.1 (Contd.)	76	$\dfrac{(1-e^{-bs})[1-e^{-(2-\frac{b}{a})as}]}{s^2(1-e^{-2as})}$	$\dfrac{t-2na}{a}$	$2na < t < 2na+b$	$0 < b \leq a$
			$\dfrac{b}{a}$	$2na+b < t < (2n+2)a-b$	$\mathrm{Re}\, s > 0$
			$\dfrac{(2n+2)a-t}{a}$	$(2n+2)a-b < t < (2n+2)a$	$\underline{n = 0,1,2,\ldots}$
	77	$\dfrac{a(1-e^{-bs})-b(1-e^{-as})}{s^2(1-e^{-2as})}$	$(a-b)(t-2na)$	$2na < t < 2na+b$	$0 < b \leq a$
			$b[(2n+1)a-t]$	$2na+b < t < (2n+1)a$	$\mathrm{Re}\, s > 0$
			0	$(2n+1)a < t < (2n+2)a$	$\underline{n = 0,1,2,\ldots}$
	78	$\dfrac{b(1-e^{-cs})-c(1-e^{-bs})}{s^2(1-e^{-as})}$	$(b-c)(t-na)$	$na < t < na+c$	$0 < c < b \leq a$
			$c(b+na-t)$	$na+c < t < na+b$	$\mathrm{Re}\, s > 0$
			0	$na+b < t < (n+1)a$	$\underline{n = 0,1,2,\ldots}$

Functions Containing Terms of the Type $(e^{-as}-e^{-bs})$

	g(s)	f(t)		
79	$\dfrac{e^{-as}-e^{-bs}}{s^2}$	0	$0 < t < a$	$0 < a < b$
		$t-a$	$a < t < b$	$\mathrm{Re}\, s > 0$
		$b-a$	$t > b$	
80	$\dfrac{e^{-as}-e^{-bs}}{s^3}$	0	$0 < t < a$	$0 < a < b$
		$\frac{1}{2}(t-a)^2$	$a < t < b$	$\mathrm{Re}\, s > 0$
		$t(b-a)+\frac{1}{2}(a^2-b^2)$	$t > b$	
81	$\dfrac{(e^{-as}-e^{-bs})^2}{s^2}$	0	$0 < t < 2a$	$0 < a < b$
		$t-2a$	$2a < t < a+b$	$\mathrm{Re}\, s > -\infty$
		$2b-t$	$a+b < t < 2b$	
		0	$t > 2b$	

		g(s)	f(t)		
3.1 (Contd.)	82	$\dfrac{(e^{-as}-e^{-bs})^2}{s^3}$	0	$0 < t < 2a$	$0 < a < b$
			$\frac{1}{2}(t-2a)^2$	$2a < t < a+b$	$\mathrm{Re}\, s > 0$
			$(b-a)^2-\frac{1}{2}(t-2b)^2$	$a+b < t < 2b$	
			$(b-a)^2$	$t > 2b$	
	83	$\dfrac{(e^{-as}-e^{-bs})^3}{s^3}$	0	$0 < t < 3a$	$0 < a < b$
			$\frac{1}{2}(t-3a)^2$	$3a < t < 2a+b$	$\mathrm{Re}\, s > -\infty$
			$\frac{3}{4}(b-a)^2-[t-\frac{3}{2}(a+b)]^2$	$2a+b < t < a+2b$	
			$\frac{1}{2}(3b-t)^2$	$a+2b < t < 3b$	
			0	$t > 3b$	
	84	$\dfrac{2\left(e^{-\frac{a-b}{2}s}-e^{-\frac{a+b}{2}s}\right)}{s^2(1+e^{-as})}-\dfrac{b}{s}$	$-b$	$0 < t < \frac{a-b}{2}$	$0 < b < a$
			$2t-(4n+1)a$	$\frac{(4n+1)a-b}{2} < t < \frac{(4n+1)a+b}{2}$	$\mathrm{Re}\, s > 0$
			b	$\frac{(4n+1)a+b}{2} < t < \frac{(4n+3)a-b}{2}$	$\underline{n = 0,1,2,\ldots}$
			$-2t+(4n+3)a$	$\frac{(4n+3)a-b}{2} < t < \frac{(4n+3)a+b}{2}$	
			$-b$	$\frac{(4n+3)a+b}{2} < t < \frac{(4n+5)a-b}{2}$	
	85	$\dfrac{2e^{-\frac{as}{2}}\left(e^{\frac{bs}{2}}-e^{-\frac{bs}{2}}\right)-bs(1+e^{-as})}{s^2(1-e^{-as})}$	$-\frac{b}{a}$	$na < t < \frac{(2n+1)a-b}{2}$	$0 < b < a$
			$\frac{2t}{a}-(2n+1)$	$\frac{(2n+1)a-b}{2} < t < \frac{(2n+1)a+b}{2}$	$\mathrm{Re}\, s > 0$
			$\frac{b}{a}$	$\frac{(2n+1)a+b}{2} < t < (n+1)a$	$\underline{n = 0,1,2,\ldots}$
Miscellaneous					
	86	$\dfrac{e^{-\frac{a}{s}}}{s^2}$	$\left(\frac{t}{a}\right)^{\frac{1}{2}} J_1(2a^{\frac{1}{2}}t^{\frac{1}{2}})$		$\mathrm{Re}\, s > 0$

		$g(s)$	$f(t)$		
3.1 (Contd.)	87	$\frac{1}{s}e^{s^{-n}}$	${}_0F_n\left[\frac{1}{n},\frac{2}{n},\ldots,\frac{n-1}{n},1;\left(\frac{t}{n}\right)^n\right]$		$n=1,2,3,\ldots$ $\mathrm{Re}\, s>0$
	88	$\frac{e^{-as^{\frac{1}{2}}}}{s+b}$	$\frac{1}{2}e^{-bt}\left[e^{-iab^{\frac{1}{2}}}\mathrm{Erfc}\left(\frac{a}{2t^{\frac{1}{2}}}-ib^{\frac{1}{2}}t^{\frac{1}{2}}\right)+e^{iab^{\frac{1}{2}}}\mathrm{Erfc}\left(\frac{a}{2t^{\frac{1}{2}}}+ib^{\frac{1}{2}}t^{\frac{1}{2}}\right)\right]$		$\mathrm{Re}\, a^2\geq 0$ $\mathrm{Re}\, s>-\mathrm{Re}\, b$
	89	$\frac{e^{-\frac{as}{s^2+1}}}{s^2+1}$	$\int_0^t J_0[2u^{\frac{1}{2}}(t-u)^{\frac{1}{2}}]J_0(2a^{\frac{1}{2}}u^{\frac{1}{2}})\,du$		$\mathrm{Re}\, s>0$
	90	$\frac{e^{-b(s^2-a^2)^{\frac{1}{2}}}}{(s^2-a^2)^{\frac{1}{2}}}$	0 $I_0[a(t^2-b^2)^{\frac{1}{2}}]$	$0<t<b$ $t>b$	$b>0$ $\mathrm{Re}\, s>\lvert\mathrm{Re}\, a\rvert$
	91	$e^{-b(s^2-a^2)^{\frac{1}{2}}}-e^{-bs}$	0 $\frac{abI_1[a(t^2-b^2)^{\frac{1}{2}}]}{(t^2-b^2)^{\frac{1}{2}}}$	$0<t<b$ $t>b$	$b>0$ $\mathrm{Re}\, s>\lvert\mathrm{Re}\, a\rvert$
	92	$e^{-s}s^n\left(\frac{1}{s}\frac{d}{ds}\right)^n\left(\frac{e^s}{s}\right)$	$P_n(1-t)$		$n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$

Functions of e^{-bs}

		$g(s)$	$f(t)$		
3.2	1	$\frac{e^{-bs}}{s^\nu}$	0 $(t-b)^{\nu-1}$	$0<t<b$ $t>b$	$b>0$ $\mathrm{Re}\,\nu>0$ $\mathrm{Re}\, s>0$

		$g(s)$	$f(t)$		
3.2 (Contd.)	2	$\frac{e^{-bs}}{(s^2-ia^2)^{\frac{1}{2}}}\left\{\left[\frac{s+(s^2-ia^2)^{\frac{1}{2}}}{ai^{\frac{1}{2}}}\right]^\nu-\left[\frac{ai^{\frac{1}{2}}}{s+(s^2-ia^2)^{\frac{1}{2}}}\right]^\nu\right\}$	0 $\frac{2}{\pi}e^{\frac{i\nu\pi}{2}}\left(\frac{t-b}{t+b}\right)^{\frac{\nu}{2}}\left\{\mathrm{ker}_\nu[a(t^2-b^2)^{\frac{1}{2}}]+i\,\mathrm{kei}_\nu[a(t^2-b^2)^{\frac{1}{2}}]\right\}$	$0<t<b$ $t>b$	$\lvert\mathrm{Re}\,\nu\rvert<1$ $b>0$ $\mathrm{Re}(s+ai^{\frac{1}{2}})>0$

Functions of $e^{\pm\frac{a}{s}}$

	$g(s)$	$f(t)$	
3	$\frac{e^{\frac{a}{s}}}{s^{\frac{1}{2}}}$	$\frac{\cosh(2a^{\frac{1}{2}}t^{\frac{1}{2}})}{(\pi t)^{\frac{1}{2}}}$	$\mathrm{Re}\, s>0$
4	$\frac{e^{-\frac{a}{s}}}{s^{\frac{1}{2}}}$	$\frac{\cos(2a^{\frac{1}{2}}t^{\frac{1}{2}})}{(\pi t)^{\frac{1}{2}}}$	$\mathrm{Re}\, s>0$
5	$\frac{e^{\frac{a}{s}}}{s^{\frac{3}{2}}}$	$\frac{\sinh(2a^{\frac{1}{2}}t^{\frac{1}{2}})}{(\pi a)^{\frac{1}{2}}}$	$\mathrm{Re}\, s>0$
6	$\frac{e^{-\frac{a}{s}}}{s^{\frac{3}{2}}}$	$\frac{\sin(2a^{\frac{1}{2}}t^{\frac{1}{2}})}{(\pi a)^{\frac{1}{2}}}$	$\mathrm{Re}\, a^{\frac{1}{2}}\geq 0$ $\mathrm{Re}\, s>0$
7	$\frac{e^{\frac{a}{s}}}{s^{\frac{5}{2}}}$	$\frac{t^{\frac{1}{2}}}{a\pi^{\frac{1}{2}}}\cosh(2a^{\frac{1}{2}}t^{\frac{1}{2}})-\frac{1}{2a^{\frac{3}{2}}\pi^{\frac{1}{2}}}\sinh(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	$\mathrm{Re}\, s>0$
8	$\frac{e^{-\frac{a}{s}}}{s^{\frac{5}{2}}}$	$\frac{1}{\pi^{\frac{1}{2}}a}\left[\frac{\sin(2a^{\frac{1}{2}}t^{\frac{1}{2}})}{2a^{\frac{1}{2}}}-t^{\frac{1}{2}}\cos(2a^{\frac{1}{2}}t^{\frac{1}{2}})\right]$	$\mathrm{Re}\, a^{\frac{1}{2}}>0$ $\mathrm{Re}\, s>0$
9	$\frac{e^{\frac{a}{s}}}{s^\nu}$	$\left(\frac{t}{a}\right)^{\frac{\nu-1}{2}}I_{\nu-1}(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	$\mathrm{Re}\,\nu>0$ $\mathrm{Re}\, s>0$

3.2 (Contd.)		$g(s)$	$f(t)$	
	10	$\frac{e^{-\frac{a}{s}}}{s^{\nu}}$	$\left(\frac{t}{a}\right)^{\frac{\nu-1}{2}} J_{\nu-1}(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	Re $\nu > 0$ Re $s > 0$
	11	$\frac{e^{\frac{a}{s}}+1}{s^{\frac{1}{2}}}$	$\frac{2}{(\pi t)^{\frac{1}{2}}}\cosh^2(a^{\frac{1}{2}}t^{\frac{1}{2}})$	Re $s > 0$
	12	$\frac{e^{\frac{a}{s}}-1}{s^{\frac{1}{2}}}$	$\frac{2}{(\pi t)^{\frac{1}{2}}}\sinh^2(a^{\frac{1}{2}}t^{\frac{1}{2}})$	Re $s > 0$
	13	$\frac{e^{\frac{y}{s}}}{s^{c}(1-\frac{x}{s})^{b}}$	$\frac{t^{c-1}}{\Gamma(c)}\Phi_3(b,c;xt,yt)$	Re $c > 0$ Re $s >$ Max 0, Re x
Functions of $e^{-as^{\frac{1}{2}}}$ and $e^{-\frac{a}{s^{\frac{1}{2}}}}$				
	14	$e^{-as^{\frac{1}{2}}}$	$\frac{a e^{-\frac{a^2}{4t}}}{2\pi^{\frac{1}{2}}t^{\frac{3}{2}}}$	Re $a^2 > 0$ Re $s > 0$
	15	$s^{\frac{1}{2}}e^{-as^{\frac{1}{2}}}$	$\frac{(a^2-2t)e^{-\frac{a^2}{4t}}}{4\pi^{\frac{1}{2}}t^{\frac{5}{2}}}$	Re $a^2 \geq 0$ Re $s > 0$
	16	$\frac{e^{-as^{\frac{1}{2}}}}{s^{\frac{1}{2}}}$	$\frac{e^{-\frac{a^2}{4t}}}{(\pi t)^{\frac{1}{2}}}$	Re $a^2 \geq 0$ Re $s > 0$
	17	$\frac{e^{-as^{\frac{1}{2}}}-1}{s^{\frac{1}{2}}}$	$\frac{e^{-\frac{a^2}{4t}}-1}{(\pi t)^{\frac{1}{2}}}$	Re $a^2 \geq 0$ Re $s \geq 0$
	18	$s e^{-as^{\frac{1}{2}}}$	$\frac{a\left(\frac{a^2}{2t}-3\right)e^{-\frac{a^2}{4t}}}{4\pi^{\frac{1}{2}}t^{\frac{5}{2}}}$	Re $a^2 \geq 0$ Re $s > 0$

3.2 (Contd.)		$g(s)$	$f(t)$	
	19	$\frac{e^{-as^{\frac{1}{2}}}}{s}$	$\mathrm{Erfc}\left(\frac{a}{2t^{\frac{1}{2}}}\right)$	Re $a^2 \geq 0$ Re $s > 0$
	20	$\frac{1-e^{-as^{\frac{1}{2}}}}{s}$	$\mathrm{Erf}\left(\frac{a}{2t^{\frac{1}{2}}}\right)$	Re $a^2 > 0$ Re $s > 0$
	21	$s^{\frac{3}{2}}e^{-as^{\frac{1}{2}}}$	$\frac{1}{4\pi^{\frac{1}{2}}t^{\frac{5}{2}}}e^{-\frac{a^2}{4t}}\left[\frac{a^4}{4t^2}-\frac{3a^2}{2t}+3\right]$	Re $a > 0$ Re $s > 0$
	22	$\frac{e^{-as^{\frac{1}{2}}}}{s^{\frac{3}{2}}}$	$\frac{2t^{\frac{1}{2}}}{\pi^{\frac{1}{2}}}e^{-\frac{a^2}{4t}}-a\,\mathrm{Erfc}\frac{a}{2t^{\frac{1}{2}}}$	Re $a^2 \geq 0$ Re $s > 0$
	23	$s^{\frac{n-1}{2}}e^{-(2as)^{\frac{1}{2}}}$	$\frac{He_n\left(\frac{a^{\frac{1}{2}}}{t^{\frac{1}{2}}}\right)}{2^{\frac{n}{2}}\pi^{\frac{1}{2}}t^{\frac{n+1}{2}}e^{\frac{a}{2t}}}$	$n = 0,1,2,\ldots$ Re $a > 0$ Re $s > 0$
	24	$s^{\nu}e^{-as^{\frac{1}{2}}}$	$\frac{e^{-\frac{a^2}{8t}}D_{2\nu+1}\left(\frac{a}{2^{\frac{1}{2}}t^{\frac{1}{2}}}\right)}{2^{\nu+\frac{1}{2}}\pi^{\frac{1}{2}}t^{\nu+1}}$	Re $a^2 > 0$ Re $s > 0$
	25	$\frac{e^{-as^{\frac{1}{2}}}}{(s-1)^{\frac{1}{2}}}$	$\frac{e^{t}}{(\pi t)^{\frac{1}{2}}}\left\{e^{-\frac{a^2}{4t}}-a\int_0^{\infty}e^{-\frac{u^2}{4t}}(u^2-a^2)^{-\frac{1}{2}}\cdot J_1[(u^2-a^2)^{\frac{1}{2}}]du\right\}$	Re $a^2 > 0$ Re $s > 1$
	26	$\frac{e^{-as^{\frac{1}{2}}}}{s^{\frac{1}{2}}+b}$	$\frac{e^{-\frac{a^2}{4t}}}{(\pi t)^{\frac{1}{2}}}-b e^{ab+b^2t}\mathrm{Erfc}\left(\frac{a}{2t^{\frac{1}{2}}}+bt^{\frac{1}{2}}\right)$	Re $a^2 \geq 0$ Re $s > 0$ if Re $b \geq 0$ Re $s >$ Max 0, Re b^2 if Re b

3.2 (Contd.)		$g(s)$	$f(t)$	
	27	$\dfrac{s^{\frac{1}{2}}e^{-as^{\frac{1}{2}}}}{s^{\frac{1}{2}}+b}$	$\pi^{-\frac{1}{2}}\left(\dfrac{a}{2t^{\frac{3}{2}}}-\dfrac{b}{t^{\frac{1}{2}}}\right)e^{-\frac{a^2}{4t}}$ $+\,b^2e^{ab+b^2t}\,\mathrm{Erfc}\left(\dfrac{a}{2t^{\frac{1}{2}}}+bt^{\frac{1}{2}}\right)$	Re $a^2 \geqslant 0$ Re $s>0$ if Re $b \geqslant 0$ Re $s >$ Max 0, Re b^2 if Re $b<0$
	28	$\dfrac{e^{-bs^{\frac{1}{2}}}}{s^{\frac{1}{2}}(s^{\frac{1}{2}}+a)}$	$e^{a^2t+ab}\,\mathrm{Erfc}\left(at^{\frac{1}{2}}+\dfrac{b}{2t^{\frac{1}{2}}}\right)$	Re $b^2 \geqslant 0$ Re $s>0$ if Re $a \geqslant 0$ Re $s >$ Max 0, Re a^2 if Re $a<0$
	29	$\dfrac{s}{s^{\frac{1}{2}}+b}e^{-as^{\frac{1}{2}}}$	$\pi^{-\frac{1}{2}}t^{-\frac{3}{2}}\left(\dfrac{a^2}{4}t^{-1}-\dfrac{1}{2}-\dfrac{ab}{2}+b^2t\right)e^{-\frac{a^2}{4t}}$ $-b^3e^{ab+b^2t}\,\mathrm{Erfc}\left(\frac{a}{2}t^{-\frac{1}{2}}+bt^{\frac{1}{2}}\right)$	Re $a^2>0$ Re $s>0$ if Re $b \geqslant 0$ Re $s >$ Max 0, Re b^2 if Re $b<0$
	30	$\dfrac{e^{-as^{\frac{1}{2}}}}{s(s^{\frac{1}{2}}+b)}$	$\dfrac{1}{b}\,\mathrm{Erfc}\,\dfrac{a}{2t^{\frac{1}{2}}}-\dfrac{1}{b}e^{ab+b^2t}\,\mathrm{Erfc}\left(\dfrac{a}{2t^{\frac{1}{2}}}+bt^{\frac{1}{2}}\right)$	Re $a^2 \geqslant 0$ Re $s>0$ if Re $b \geqslant 0$ Re $s >$ Max 0, Re b^2 if Re $b<0$
	31	$\dfrac{e^{-as^{\frac{1}{2}}}}{s^{\frac{3}{2}}(s^{\frac{1}{2}}+b)}$	$\dfrac{2t^{\frac{1}{2}}e^{-\frac{a^2}{4t}}}{\pi^{\frac{1}{2}}b}-\left(\dfrac{1}{b^2}+\dfrac{a}{b}\right)\mathrm{Erfc}\,\dfrac{a}{2t^{\frac{1}{2}}}$ $+\,\dfrac{e^{ab+b^2t}}{b^2}\,\mathrm{Erfc}\left(\dfrac{a}{2t^{\frac{1}{2}}}+bt^{\frac{1}{2}}\right)$	Re $a^2 \geqslant 0$ Re $s>0$ if Re $b \geqslant 0$ Re $s >$ Max 0, Re b^2 if Re $b<0$
	32	$\dfrac{1+as^{\frac{1}{2}}}{s^{\frac{3}{2}}e^{as^{\frac{1}{2}}}}$	$2\left(\frac{t}{\pi}\right)^{\frac{1}{2}}e^{-\frac{a^2}{4t}}$	Re $a^2 \geqslant 0$ Re $s>0$
	33	$\dfrac{e^{-\frac{a}{s^{\frac{1}{2}}}}}{s^{\frac{1}{2}}}$	$\dfrac{1}{2\pi^{\frac{1}{2}}t^{\frac{3}{2}}}\displaystyle\int_0^\infty ue^{-\frac{u^2}{4t}}J_0(2a^{\frac{1}{2}}u^{\frac{1}{2}})\,du$	Re $a>0$ Re $s>0$

3.2 (Contd.)		$g(s)$	$f(t)$	
	34	$\dfrac{e^{-\frac{a}{s^{\frac{1}{2}}}}}{s^{\nu}}$	$\dfrac{\displaystyle\int_0^\infty u^{\nu+\frac{1}{2}}e^{-\frac{u^2}{4t}}J_{2\nu-1}(2a^{\frac{1}{2}}u^{\frac{1}{2}})\,du}{2\pi^{\frac{1}{2}}a^{\nu-\frac{1}{2}}t^{\frac{3}{2}}}$	Re $a>0$ Re $\nu>0$ Re $s>0$
Functions of $e^{-as^{\frac{1}{3}}}$				
	35	$e^{-3s^{\frac{1}{3}}}$	$\dfrac{3^{\frac{1}{2}}}{\pi t^{\frac{3}{2}}}K_{\frac{1}{3}}\left(\dfrac{2}{t^{\frac{1}{2}}}\right)$	Re $s>0$
	36	$\dfrac{e^{-3s^{\frac{1}{3}}}}{s^{\frac{1}{3}}}$	$\dfrac{3^{\frac{1}{2}}}{\pi t}K_{\frac{2}{3}}\left(\dfrac{2}{t^{\frac{1}{2}}}\right)$	Re $s>0$
	37	$\dfrac{e^{-3s^{\frac{1}{3}}}}{s^{\frac{2}{3}}}$	$\dfrac{3^{\frac{1}{2}}}{\pi t^{\frac{1}{2}}}K_{\frac{1}{3}}\left(\dfrac{2}{t^{\frac{1}{2}}}\right)$	Re $s>0$
	38	$\dfrac{e^{s^{\frac{1}{3}}}+\omega^2e^{\omega s^{\frac{1}{3}}}+\omega e^{\omega^2s^{\frac{1}{3}}}}{s^{\frac{2}{3}}}$ where $\omega=-\frac{1}{2}+i\dfrac{3^{\frac{1}{2}}}{2}$	$\left(\dfrac{3}{t}\right)^{\frac{1}{2}}J_{\frac{1}{3}}\left(\dfrac{2}{3^{\frac{4}{3}}t^{\frac{1}{3}}}\right)$	Re $s>0$
	39	$\dfrac{e^{s^{\frac{1}{3}}}+e^{\omega s^{\frac{1}{3}}}+e^{\omega^2s^{\frac{1}{3}}}}{s^{\frac{2}{3}}}$ where $\omega=-\frac{1}{2}+i\dfrac{3^{\frac{1}{2}}}{2}$	$\left(\dfrac{3}{t}\right)^{\frac{1}{2}}J_{-\frac{1}{3}}\left(\dfrac{2}{3^{\frac{4}{3}}t^{\frac{1}{3}}}\right)$	Re $s>0$
Functions of $e^{as^{\pm b}}$				
	40	$\dfrac{e^{as^{-b}}}{s^{b}}$	$t^{b-1}\displaystyle\sum_{n=0}^{\infty}\dfrac{(at^b)^n}{n!\,\Gamma[b(n+1)]}$	Re $b>0$ Re $s>0$

3.2 (Contd.)

	$g(s)$	$f(t)$		
41	$s^{a-1} e^{-(bs)^{\frac{1}{m}}}$	$\dfrac{m^{\frac{1}{2}+ma}}{(2\pi)^{\frac{1+m}{2}} b^{a}} \sum_{i,-i} \frac{1}{i} E\left(a, a+\frac{1}{m}, \ldots, a+\frac{m-1}{m} :: \frac{be^{i\pi}}{m^m t}\right)$ $\sum_{i,-i}$ denotes that in the expression following the Σ sign i is to be replaced by -i and the two expressions are to be added.		Re a > o Re b > o m = 2,3,4,... Re s > o

Functions of $e^{-b(s^2 \pm a^2)^{\frac{1}{2}}}$

	$g(s)$	$f(t)$		
42	$\dfrac{[(s^2+a^2)^{\frac{1}{2}}-s]^{\frac{1}{2}}}{(s^2+a^2)^{\frac{1}{2}}} e^{-b(s^2+a^2)^{\frac{1}{2}}}$	0 $\dfrac{2^{\frac{1}{2}} \sin[a(t^2-b^2)^{\frac{1}{2}}]}{\pi^{\frac{1}{2}}(t+b)^{\frac{1}{2}}}$	$0<t<b$ $t>b$	$b>o$ $\operatorname{Re} s > \lvert \operatorname{Im} a \rvert$
43	$\dfrac{[s+(s^2+a^2)^{\frac{1}{2}}]^{\frac{1}{2}}}{(s^2+a^2)^{\frac{1}{2}}} e^{-b(s^2+a^2)^{\frac{1}{2}}}$	0 $\left(\frac{2}{\pi}\right)^{\frac{1}{2}} \dfrac{\cos[a(t^2-b^2)^{\frac{1}{2}}]}{(t+b)^{\frac{1}{2}}}$	$0<t<b$ $t>b$	$b>o$ $\operatorname{Re} s > \lvert \operatorname{Im} a \rvert$
44	$e^{-b(s^2-a^2)^{\frac{1}{2}}} \left[\dfrac{s-(s^2-a^2)^{\frac{1}{2}}}{s^2-a^2}\right]^{\frac{1}{2}}$	0 $\left(\frac{2}{\pi}\right)^{\frac{1}{2}} \dfrac{\sinh[a(t^2-b^2)^{\frac{1}{2}}]}{(t+b)^{\frac{1}{2}}}$	$0<t<b$ $t>b$	$\operatorname{Re} s > \lvert \operatorname{Re} a \rvert$
45	$e^{-b(s^2-a^2)^{\frac{1}{2}}} \left[\dfrac{(s^2-a^2)^{\frac{1}{2}}+s}{s^2-a^2}\right]^{\frac{1}{2}}$	0 $\left(\frac{2}{\pi}\right)^{\frac{1}{2}} \dfrac{\cosh[a(t^2-b^2)^{\frac{1}{2}}]}{(t+b)^{\frac{1}{2}}}$	$0<t<b$ $t>b$	$\operatorname{Re} s > \lvert \operatorname{Re} a \rvert$
46	$\dfrac{e^{-b(s^2+a^2)^{\frac{1}{2}}}}{(s^2+a^2)^{\frac{1}{2}}}$	0 $J_0[a(t^2-b^2)^{\frac{1}{2}}]$	$0<t<b$ $t>b$	$b>o$ $\operatorname{Re} s > \lvert \operatorname{Im} a \rvert$

3.2 (Contd.)

	$g(s)$	$f(t)$		
47	$\dfrac{s[b(s^2+a^2)^{\frac{1}{2}}+1]}{(s^2+a^2)^{\frac{3}{2}}} e^{-b(s^2+a^2)^{\frac{1}{2}}}$	0 $t J_0[a(t^2-b^2)^{\frac{1}{2}}]$	$0<t<b$ $t>b$	$b>o$ $\operatorname{Re} s > \lvert \operatorname{Im} a \rvert$
48	$e^{-bs} - e^{-b(s^2+a^2)^{\frac{1}{2}}}$	0 $\dfrac{ab\, J_1[a(t^2-b^2)^{\frac{1}{2}}]}{(t^2-b^2)^{\frac{1}{2}}}$	$0<t<b$ $t>b$	$b>o$ $\operatorname{Re} s > \lvert \operatorname{Im} a \rvert$
49	$e^{-bs} - \dfrac{s}{(s^2+a^2)^{\frac{1}{2}}} e^{-b(s^2+a^2)^{\frac{1}{2}}}$	0 $\dfrac{at\, J_1[a(t^2-b^2)^{\frac{1}{2}}]}{(t^2-b^2)^{\frac{1}{2}}}$	$0<t<b$ $t>b$	$b>o$ $\operatorname{Re} s > \lvert \operatorname{Im} a \rvert$
50	$\dfrac{s e^{-b(s^2-a^2)^{\frac{1}{2}}}}{(s^2-a^2)^{\frac{1}{2}}} - e^{-bs}$	0 $\dfrac{at\, I_1[a(t^2-b^2)^{\frac{1}{2}}]}{(t^2-b^2)^{\frac{1}{2}}}$	$0<t<b$ $t>b$	$b>o$ $\operatorname{Re} s > \lvert \operatorname{Re} a \rvert$
51	$\left[1-\dfrac{s}{(s^2+a^2)^{\frac{1}{2}}}\right] e^{-b(s^2+a^2)^{\frac{1}{2}}}$	0 $a\left(\frac{t-b}{t+b}\right)^{\frac{1}{2}} J_1[a(t^2-b^2)^{\frac{1}{2}}]$	$0<t<b$ $t>b$	$b>o$ $\operatorname{Re} s > \lvert \operatorname{Im} a \rvert$
52	$\left[\dfrac{s}{(s^2-a^2)^{\frac{1}{2}}}-1\right] e^{-b(s^2-a^2)^{\frac{1}{2}}}$	0 $a\left(\frac{t-b}{t+b}\right)^{\frac{1}{2}} I_1[a(t^2-b^2)^{\frac{1}{2}}]$	$0<t<b$ $t>b$	$b>o$ $\operatorname{Re} s > \lvert \operatorname{Re} a \rvert$
53	$\dfrac{b(s^2+a^2)^{\frac{1}{2}}+1}{(s^2+a^2)^{\frac{3}{2}}} e^{-b(s^2+a^2)^{\frac{1}{2}}}$	0 $a^{-1}(t^2-b^2)^{\frac{1}{2}} J_1[a(t^2-b^2)^{\frac{1}{2}}]$	$0<t<b$ $t>b$	$b>o$ $\operatorname{Re} s > \lvert \operatorname{Im} a \rvert$

		g(s)	f(t)		
3.2 (Contd.)	54	$\dfrac{[(s^2+a^2)^{\frac{1}{2}}-s]^{\nu}e^{-b(s^2+a^2)^{\frac{1}{2}}}}{(s^2+a^2)^{\frac{1}{2}}}$	0	$0<t<b$	$b>0$
			$a^{\nu}\left(\frac{t-b}{t+b}\right)^{\frac{\nu}{2}} J_{\nu}[a(t^2-b^2)^{\frac{1}{2}}]$	$t>b$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$
	55	$\dfrac{[s-(s^2-a^2)^{\frac{1}{2}}]^{\nu}e^{-b(s^2-a^2)^{\frac{1}{2}}}}{(s^2-a^2)^{\frac{1}{2}}}$	0	$0<t<b$	$b>0$
			$a^{\nu}\left(\frac{t-b}{t+b}\right)^{\frac{\nu}{2}} I_{\nu}[a(t^2-b^2)^{\frac{1}{2}}]$	$t>b$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\,s>\lvert\mathrm{Re}\,a\rvert$
	56	$\dfrac{[\{s+(s^2-a^2)^{\frac{1}{2}}\}^{\nu}-\{s-(s^2-a^2)^{\frac{1}{2}}\}^{\nu}]e^{-b(s^2-a^2)^{\frac{1}{2}}}}{(s^2-a^2)^{\frac{1}{2}}}$	0	$0<t<b$	$\lvert\mathrm{Re}\,\nu\rvert<1$
			$\frac{2}{\pi}a^{\nu}\sin(\nu\pi)\left(\frac{t-b}{t+b}\right)^{\frac{\nu}{2}} K_{\nu}[a(t^2-b^2)^{\frac{1}{2}}]$	$t>b$	$\mathrm{Re}\,s>\lvert\mathrm{Re}\,a\rvert$ $b>0$
	57	$e^{-bs}-e^{-b(s^2-ia^2)^{\frac{1}{2}}}$	0	$0<t<b$	$b>0$ $\mathrm{Re}(s\pm ai^{\frac{1}{2}})>0$
			$ab\,e^{\frac{3\pi}{4}i}\dfrac{\mathrm{ber}_1[a(t^2-b^2)^{\frac{1}{2}}]+i\,\mathrm{bei}_1[a(t^2-b^2)^{\frac{1}{2}}]}{(t^2-b^2)^{\frac{1}{2}}}$	$t>b$	
	58	$e^{-bs}-\dfrac{s}{(s^2-ia^2)^{\frac{1}{2}}}e^{-b(s^2-ia^2)^{\frac{1}{2}}}$	0	$0<t<b$	$b>0$ $\mathrm{Re}(s\pm ai^{\frac{1}{2}})>0$
			$\dfrac{ae^{\frac{3}{4}\pi i}\,t\{\mathrm{ber}_1[a(t^2-b^2)^{\frac{1}{2}}]+i\,\mathrm{bei}_1[a(t^2-b^2)^{\frac{1}{2}}]\}}{(t^2-b^2)^{\frac{1}{2}}}$	$t>b$	
	59	$\dfrac{e^{-b(s^2-ia^2)^{\frac{1}{2}}}}{(s^2-ia^2)^{\frac{1}{2}}}$	0	$0<t<b$	$b>0$ $\mathrm{Re}(s\pm ai^{\frac{1}{2}})>0$
			$\mathrm{ber}[a(t^2-b^2)^{\frac{1}{2}}]+i\,\mathrm{bei}[a(t^2-b^2)^{\frac{1}{2}}]$	$t>b$	

		g(s)	f(t)		
3.2 (Contd.)	60	$\dfrac{b(s^2-ia^2)^{\frac{1}{2}}+1}{(s^2-ia^2)^{\frac{3}{2}}}e^{-b(s^2-ia^2)^{\frac{1}{2}}}$	0	$0<t<b$	$b>0$ $\mathrm{Re}(s\pm ai^{\frac{1}{2}})>0$
			$a^{-1}e^{-\frac{3\pi}{4}i}(t^2-b^2)^{\frac{1}{2}}\{\mathrm{ber}_1[a(t^2-b^2)^{\frac{1}{2}}]$ $+i\,\mathrm{bei}_1[a(t^2-b^2)^{\frac{1}{2}}]\}$	$t>b$	
	61	$\dfrac{s[b(s^2-ia^2)^{\frac{1}{2}}+1]}{(s^2-ia^2)^{\frac{3}{2}}}e^{-b(s^2-ia^2)^{\frac{1}{2}}}$	0	$0<t<b$	$b>0$ $\mathrm{Re}(s\pm ai^{\frac{1}{2}})>0$
			$t\{\mathrm{ber}[a(t^2-b^2)^{\frac{1}{2}}]+i\,\mathrm{bei}[a(t^2-b^2)^{\frac{1}{2}}]\}$	$t>b$	
	62	$\dfrac{[s-(s^2-ia^2)^{\frac{1}{2}}]^{\nu}}{(s^2-ia^2)^{\frac{1}{2}}}e^{-b(s^2-ia^2)^{\frac{1}{2}}}$	0	$0<t<b$	$b>0$ $\mathrm{Re}\,\nu>-1$
			$(ia)^{\nu}e^{-\frac{3}{4}\nu\pi i}\left(\frac{t-b}{t+b}\right)^{\frac{\nu}{2}}\{\mathrm{ber}_{\nu}[a(t^2-b^2)^{\frac{1}{2}}]$ $+i\,\mathrm{bei}_{\nu}[a(t^2-b^2)^{\frac{1}{2}}]\}$	$t>b$	$\mathrm{Re}(s\pm ai^{\frac{1}{2}})>0$

Functions of $e^{-c[(s+a)(s+b)]^{\frac{1}{2}}}$

	g(s)	f(t)		
63	$\dfrac{e^{-c[(s+a)(s+b)]^{\frac{1}{2}}}}{(s+a)^{\frac{1}{2}}(s+b)^{\frac{1}{2}}}$	0	$0<t<c$	$\mathrm{Re}\,s>\mathrm{Max}-\mathrm{Re}\,a,\ -\mathrm{Re}\,b$
		$e^{-\frac{a+b}{2}t}I_0[\frac{a-b}{2}(t^2-c^2)^{\frac{1}{2}}]$	$t>c$	$c>0$
64	$\frac{1}{s}\left(\frac{s+b}{s+a}\right)^{\frac{1}{2}}e^{-c[(s+a)(s+b)]^{\frac{1}{2}}}$	0	$0<t<c$	$\mathrm{Re}\,s>\mathrm{Max}-\mathrm{Re}\,a,\ -\mathrm{Re}\,b,0$
		$e^{-\frac{a+b}{2}t}I_0[\frac{a-b}{2}(t^2-c^2)^{\frac{1}{2}}]$ $+b\int_0^t e^{-\frac{a+b}{2}u}I_0[\frac{a-b}{2}(u^2-c^2)^{\frac{1}{2}}]du$	$t>c$	$c>0$

3.2 (Contd.)

	$g(s)$	$f(t)$	
65	$\dfrac{e^{-b(s+a)^{\frac{1}{2}}(s+b)^{\frac{1}{2}}}}{(s+a)^{\frac{1}{2}}(s+b)^{\frac{1}{2}}[s+\frac{a+b}{2}+(s+a)^{\frac{1}{2}}(s+b)^{\frac{1}{2}}]^{\nu}}$	0 $0<t<b$ $\left(\frac{t-b}{t+b}\right)^{\frac{\nu}{2}}\dfrac{e^{-\frac{a+b}{2}t}}{(a-b)^{\nu}}2^{\nu}I_{\nu}[\frac{a-b}{2}(t^2-b^2)^{\frac{1}{2}}]$ $t>b$	$\mathrm{Re}\,\nu>-1$ $b>0$ $\mathrm{Re}\,s>\frac{1}{2}\lvert\mathrm{Re}(a-b)\rvert-\frac{1}{2}\mathrm{Re}(a+b)$

Functions of $e^{b[s-(s^2\pm a^2)^{\frac{1}{2}}]}$

	$g(s)$	$f(t)$	
66	$\dfrac{[(s^2+a^2)^{\frac{1}{2}}-s]^{\frac{1}{2}}}{(s^2+a^2)^{\frac{1}{2}}}e^{b[s-(s^2+a^2)^{\frac{1}{2}}]}$	$\dfrac{2^{\frac{1}{2}}\sin[a(t^2+2bt)^{\frac{1}{2}}]}{\pi^{\frac{1}{2}}(t+2b)^{\frac{1}{2}}}$	$\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$
67	$\dfrac{[s+(s^2+a^2)^{\frac{1}{2}}]^{\frac{1}{2}}}{(s^2+a^2)^{\frac{1}{2}}}e^{b[s-(s^2+a^2)^{\frac{1}{2}}]}$	$\dfrac{2^{\frac{1}{2}}\cos[a(t^2+2bt)^{\frac{1}{2}}]}{\pi^{\frac{1}{2}}(t+2b)^{\frac{1}{2}}}$	$\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$
68	$\left[\dfrac{s-(s^2-a^2)^{\frac{1}{2}}}{s^2-a^2}\right]^{\frac{1}{2}}e^{b[s-(s^2-a^2)^{\frac{1}{2}}]}$	$\left(\frac{2}{\pi}\right)^{\frac{1}{2}}\dfrac{\sinh[a(t^2+2bt)^{\frac{1}{2}}]}{(t+2b)^{\frac{1}{2}}}$	$\mathrm{Re}\,s>\lvert\mathrm{Re}\,a\rvert$
69	$\left[\dfrac{(s^2-a^2)^{\frac{1}{2}}+s}{s^2-a^2}\right]^{\frac{1}{2}}e^{b[s-(s^2-a^2)^{\frac{1}{2}}]}$	$\left(\frac{2}{\pi}\right)^{\frac{1}{2}}\dfrac{\cosh[a(t^2+2bt)^{\frac{1}{2}}]}{(t+2b)^{\frac{1}{2}}}$	$\mathrm{Re}\,s>\lvert\mathrm{Re}\,a\rvert$
70	$\dfrac{e^{b[s-(s^2+a^2)^{\frac{1}{2}}]}}{(s^2+a^2)^{\frac{1}{2}}}$	$J_0[a(t^2+2bt)^{\frac{1}{2}}]$	$\lvert\arg b\rvert<\pi$ $\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$
71	$\dfrac{e^{b[s-(s^2-a^2)^{\frac{1}{2}}]}}{(s^2-a^2)^{\frac{1}{2}}}$	$I_0[a(t^2+2bt)^{\frac{1}{2}}]$	$\lvert\arg b\rvert<\pi$ $\mathrm{Re}\,s>\lvert\mathrm{Re}\,a\rvert$
72	$1-e^{-b[(s^2+a^2)^{\frac{1}{2}}-s]}$	$\dfrac{ab\,J_1[a(t^2+2bt)^{\frac{1}{2}}]}{(t^2+2bt)^{\frac{1}{2}}}$	$\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$

3.2 (Contd.)

	$g(s)$	$f(t)$	
73	$e^{b[s-(s^2-a^2)^{\frac{1}{2}}]}-1$	$\dfrac{ab\,I_1[a(t^2+2bt)^{\frac{1}{2}}]}{(t^2+2bt)^{\frac{1}{2}}}$	$\mathrm{Re}\,s>\lvert\mathrm{Re}\,a\rvert$
74	$1-\dfrac{s\,e^{b[s-(s^2+a^2)^{\frac{1}{2}}]}}{(s^2+a^2)^{\frac{1}{2}}}$	$\dfrac{a(t+b)}{(t^2+2bt)^{\frac{1}{2}}}J_1[a(t^2+2bt)^{\frac{1}{2}}]$	$\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$
75	$1-\dfrac{s}{(s^2-a^2)^{\frac{1}{2}}}e^{b[s-(s^2-a^2)^{\frac{1}{2}}]}$	$-\dfrac{a(t+b)}{(t^2+2bt)^{\frac{1}{2}}}I_1[a(t^2+2bt)^{\frac{1}{2}}]$	$\mathrm{Re}\,s>\lvert\mathrm{Re}\,a\rvert$
76	$\dfrac{[(s^2+a^2)^{\frac{1}{2}}-s]^{\nu}}{(s^2+a^2)^{\frac{1}{2}}}e^{b[s-(s^2+a^2)^{\frac{1}{2}}]}$	$a^{\nu}\left(\dfrac{t}{t+2b}\right)^{\frac{\nu}{2}}J_{\nu}[a(t^2+2bt)^{\frac{1}{2}}]$	$\mathrm{Re}\,\nu>-1$ $\lvert\arg b\rvert<\pi$ $\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$
77	$\dfrac{[s-(s^2-a^2)^{\frac{1}{2}}]^{\nu}}{(s^2-a^2)^{\frac{1}{2}}}e^{b[s-(s^2-a^2)^{\frac{1}{2}}]}$	$a^{\nu}\left(\dfrac{t}{t+2b}\right)^{\frac{\nu}{2}}I_{\nu}[a(t^2+2bt)^{\frac{1}{2}}]$	$\mathrm{Re}\,\nu>-1$ $\lvert\arg b\rvert<\pi$ $\mathrm{Re}\,s>\lvert\mathrm{Re}\,a\rvert$

Functions of $e^{c[s-(s+a)^{\frac{1}{2}}(s+b)^{\frac{1}{2}}]}$

	$g(s)$	$f(t)$	
78	$\dfrac{e^{c[s-(s+a)^{\frac{1}{2}}(s+b)^{\frac{1}{2}}]}}{(s+a)^{\frac{1}{2}}(s+b)^{\frac{1}{2}}}$	$e^{-\frac{a+b}{2}(t+c)}I_0[\frac{a-b}{2}(t^2+2ct)^{\frac{1}{2}}]$	$\mathrm{Re}\,s>\mathrm{Max}\,-\mathrm{Re}$ … $-\mathrm{Re}\,b$
79	$\dfrac{e^{c[s-(s+a)^{\frac{1}{2}}(s+b)^{\frac{1}{2}}]}}{(s+a)^{\frac{1}{2}}(s+b)^{\frac{1}{2}}[s+\frac{a+b}{2}+(s+a)^{\frac{1}{2}}(s+b)^{\frac{1}{2}}]^{\nu}}$	$\dfrac{2^{\nu}t^{\frac{\nu}{2}}e^{-\frac{a+b}{2}(t+c)}I_{\nu}[\frac{a-b}{2}(t^2+2ct)^{\frac{1}{2}}]}{(a-b)^{\nu}(t+2c)^{\frac{\nu}{2}}}$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\,s>\frac{1}{2}\lvert\mathrm{Re}(a-b)$ … $-\frac{1}{2}\mathrm{Re}(a+b)$

Miscellaneous

	$g(s)$	$f(t)$	
80	$\dfrac{e^{-a(s+b^2)^{\frac{1}{2}}}}{s}$	$\dfrac{e^{-ab}}{2}\mathrm{Erfc}\left(\dfrac{a}{2t^{\frac{1}{2}}}-bt^{\frac{1}{2}}\right)+\dfrac{e^{ab}}{2}\mathrm{Erfc}\left(\dfrac{a}{2t^{\frac{1}{2}}}+bt^{\frac{1}{2}}\right)$	$\mathrm{Re}\,s>0$

		g(s)	f(t)	
3.2 (Contd.)	81	$\dfrac{e^{-\frac{(s^2+1)^{\frac{1}{2}}}{as}}}{s^{\nu}}$	$\left(\frac{t}{a}\right)^{\frac{\nu-1}{2}}\Big\{J_{\nu-1}(2a^{\frac{1}{2}}t^{\frac{1}{2}})$ $-aJ_{\nu-1}(2a^{\frac{1}{2}}t^{\frac{1}{2}})\int_0^{\infty}\frac{J_1[(u^2-a^2)^{\frac{1}{2}}]}{(u^2-a^2)^{\frac{1}{2}}}du\Big\}$	Re $\nu > o$ Re $s > o$
	82	$\int_0^h e^{-u}u^b(\frac{a^2}{4}-su-u^2)^{\nu}du$ where $h = \dfrac{(s^2+a^2)^{\frac{1}{2}}-s}{2}$	$(\frac{a}{2})^{\nu}\Gamma(\nu+1)\dfrac{t^{\frac{b-\nu-1}{2}}}{(t+1)^{\frac{b+\nu+1}{2}}}$ $\cdot J_{b+\nu+1}[a(t^2+t)^{\frac{1}{2}}]$	Re$(\nu+b+1) >$ Re $b > -1$ Re $s > \lvert$Im $a\rvert$
	83	$e^{-b(s^2+a^2)^{\frac{1}{2}}}\int_0^{\infty}e^{-u}\{u^2-2[cs-b(s^2+a^2)^{\frac{1}{2}}]u$ $+c^2[(s^2+a^2)^{\frac{1}{2}}-s]^2\}^{-\frac{1}{2}}du$	$0 \qquad 0 < t < b$ $\dfrac{J_0[a(t-b^2)^{\frac{1}{2}}]}{c-t} \qquad t > b$	$b > o$ $\lvert\arg(b-c)\rvert < \pi$ Re $s > \lvert$Im $a\rvert$

Functions of $e^{\pm\frac{a}{2s}}$

3.2.1	1	$\dfrac{(s+a)e^{\frac{a}{2s}}}{s^{\frac{5}{2}}}$	$\frac{2}{\pi^{\frac{1}{2}}}t^{\frac{1}{2}}\cosh(2^{\frac{1}{2}}a^{\frac{1}{2}}t^{\frac{1}{2}})$	Re $s > o$
	2	$\dfrac{(s-a)e^{-\frac{a}{2s}}}{s^{\frac{5}{2}}}$	$\frac{2}{\pi^{\frac{1}{2}}}t^{\frac{1}{2}}\cos(2^{\frac{1}{2}}a^{\frac{1}{2}}t^{\frac{1}{2}})$	Re $s > o$

Functions of $e^{-as^{\frac{1}{2}}}$

	3	$\dfrac{e^{-as^{\frac{1}{2}}}}{s^2}$	$(t+\frac{a^2}{2})\text{Erfc}\,\frac{a}{2t^{\frac{1}{2}}}-\frac{at^{\frac{1}{2}}}{\pi^{\frac{1}{2}}}e^{-\frac{a^2}{4t}}$	Re $a^2 > o$ Re $s > o$
	4	$\dfrac{s}{s^2+b^2}e^{-as^{\frac{1}{2}}}$	$e^{-\frac{ab^{\frac{1}{2}}}{2^{\frac{1}{2}}}}\cos[bt-(\frac{a^2b}{2})^{\frac{1}{2}}]$ $-\frac{1}{\pi}\int_0^{\infty}e^{-ut}\sin(au^{\frac{1}{2}})\frac{u}{u^2+b^2}du$	Re $a^2 \geq o$ Re $b \geq o$ Re $s > \lvert$Im $b\rvert$

		g(s)	f(t)	
3.2.1 (Contd.)	5	$\dfrac{e^{-as^{\frac{1}{2}}}}{(s^{\frac{1}{2}}+b)^2}$	$(2bt^2+ab+1)e^{ab+b^2t}\text{Erfc}\left(\frac{a}{2t^{\frac{1}{2}}}+bt^{\frac{1}{2}}\right)$ $-\frac{2bt^{\frac{1}{2}}}{\pi^{\frac{1}{2}}}e^{-\frac{a^2}{4t}}$	Re $a^2 > o$ Re $s > o$ if Re $b \geq o$ Re $s >$ Max o, Re b^2 if Re $b < o$
	6	$\dfrac{e^{-as^{\frac{1}{2}}}}{s^{\frac{1}{2}}(s^{\frac{1}{2}}+b)^2}$	$2(\frac{t}{\pi})^{\frac{1}{2}}e^{-\frac{a^2}{4t}}-(2bt+a)e^{ab+b^2t}\cdot$ $\text{Erfc}\left(\frac{a}{2t^{\frac{1}{2}}}+bt^{\frac{1}{2}}\right)$	Re $a^2 > o$ Re $s > o$ if Re $b \geq o$ Re $s >$ Max o, Re b^2 if Re $b < o$
	7	$\dfrac{e^{-as^{\frac{1}{2}}}}{s(s^{\frac{1}{2}}+b)^2}$	$\frac{1}{b^2}\text{Erfc}\,\frac{a}{2t^{\frac{1}{2}}}-\frac{2t^{\frac{1}{2}}e^{-\frac{a^2}{4t}}}{\pi^{\frac{1}{2}}b}$ $+(2t+\frac{a}{b}-\frac{1}{b^2})e^{ab+b^2t}\text{Erfc}\left(\frac{a}{2t^{\frac{1}{2}}}+bt^{\frac{1}{2}}\right)$	Re $a^2 > o$ Re $s > o$ if Re $b \geq o$ Re $s >$ Max o, Re b^2 if Re $b < o$

Functions of $e^{-b(s^2\pm a^2)^{\frac{1}{2}}}$

	8	$\dfrac{e^{-b(s^2+a^2)^{\frac{1}{2}}}}{s^2+a^2}$	$0 \qquad 0 < t < b$ $\int_b^t J_0[a(t-u)]J_0[a(u^2-b^2)^{\frac{1}{2}}]du \qquad t > b$	$b > o$ Re $s > \lvert$Im $a\rvert$
	9	$\dfrac{e^{-b(s^2-a^2)^{\frac{1}{2}}}}{s^2-a^2}$	$0 \qquad 0 < t < b$ $\int_b^t I_0[a(t-u)]I_0[a(u^2-b^2)]du \qquad t > b$	$b > o$ Re $s > \lvert$Re $a\rvert$
	10	$\dfrac{s\,e^{-b(s^2+a^2)^{\frac{1}{2}}}}{s^2+a^2}$	$0 \qquad 0 < t < b$ $\frac{\pi a}{2}Y_0[a(t^2-b^2)^{\frac{1}{2}}]\cdot[ab\,J_0(at)+\sin at]$ $-\frac{\pi a}{2}(t^2-b^2)^{\frac{1}{2}}Y_0[a(t^2-b^2)^{\frac{1}{2}}] \qquad t > b$	$b > o$ Re $s > \lvert$Im $a\rvert$

		$g(s)$	$f(t)$		
3.2.1 (Contd.)	11	$se^{-b(s^2-a^2)^{\frac{1}{2}}}\left[\frac{b}{s^2-a^2}+\frac{1}{(s^2-a^2)^{\frac{3}{2}}}\right]$	0 $t\,I_0[a(t^2-b^2)^{\frac{1}{2}}]$	$0<t<b$ $t>b$	$b>0$ $\mathrm{Re}\, s>\lvert \mathrm{Re}\, a\rvert$
	12	$e^{-b(s^2-a^2)^{\frac{1}{2}}}\left[\frac{b}{s^2-a^2}-\frac{1}{(s^2-a^2)^{\frac{3}{2}}}\right]$	0 $\frac{1}{a}(t^2-b^2)^{\frac{1}{2}}I_1[a(t^2-b^2)^{\frac{1}{2}}]$	$0<t<b$ $t>b$	$b>0$ $\mathrm{Re}\, s>\lvert \mathrm{Re}\, a\rvert$
Miscellaneous					
	13	$\int_0^\infty \frac{u^\mu}{(s+au)^\nu}e^{-\frac{u^2}{2}}du$	$\frac{\Gamma(\mu+1)}{\Gamma(\nu)}t^{\nu-1}e^{\frac{a^2t^2}{4}}D_{-\mu-1}(at)$		$\mathrm{Re}\,\nu>0$ $\mathrm{Re}\, s>0$
4	1	$\frac{\log s}{s}$	$-\log(\gamma t)$		$\mathrm{Re}\, s>0$
	2	$\frac{1}{\log s}$	$\int_0^\infty \frac{t^{u-1}}{\Gamma(u)}du$		$\mathrm{Re}\, s>0$
	3	$\frac{1}{s\log\frac{s}{a}}$	$\nu(at)$		$\mathrm{Re}\, s>0$
	4	$\frac{1}{s(\log\frac{s}{a})^b}$	$\frac{\mu(at,b-1)}{\Gamma(b)}$		$\mathrm{Re}\, b>0$ $\mathrm{Re}\, s>\mathrm{Re}\, a$
	5	$\frac{(\log s)^2}{s}$	$[\log(\gamma t)]^2-\frac{\pi^2}{6}$		$\mathrm{Re}\, s>0$
	6	$\frac{1}{s}\left\{\frac{\pi^2}{6}+[\log(\gamma s)]^2\right\}$	$(\log t)^2$		$\mathrm{Re}\, s>0$

		$g(s)$	$f(t)$	
4 (Contd.)	7	$\frac{\log^3 s}{s}$	$\frac{\pi^2}{2}\log\gamma t-\log^3\gamma t+\phi''(1)$	$\mathrm{Re}\, s>0$
4.1	1	$\frac{\log s}{s^{n+1}}$	$[1+\frac{1}{2}+\frac{1}{3}+\dots+\frac{1}{n}-\log(\gamma t)]\frac{t^n}{n!}$	$n=1,2,3,\dots$ $\mathrm{Re}\, s>0$
	2	$\left(\frac{\log s}{s}\right)^2$	$t\left\{[1-\log(\gamma t)]^2+1-\frac{\pi^2}{6}\right\}$	$\mathrm{Re}\, s>0$
	3	$\frac{\log^3 s}{s^2}$	$t[(1-\log\gamma t)^3-3(1-\frac{\pi^2}{6})\log\gamma t+5-\frac{\pi^2}{2}+\psi''(1)]$	$\mathrm{Re}\, s>0$
	4	$\frac{1}{s^{n+1}}[1+\frac{1}{2}+\frac{1}{3}+\dots+\frac{1}{n}-\log(\gamma s)]$	$\frac{t^n}{n!}\log t$	$n=1,2,3,\dots$ $\mathrm{Re}\, s>0$
	5	$\frac{\log s}{s^2+a^2}$	$a^{-1}\lvert\cos(at)\mathrm{Si}(at)+\sin(at)[\log a-\mathrm{Ci}(at)]\rvert$	$\mathrm{Re}\, s>0$
	6	$\frac{s\log s}{s^2+a^2}$	$\cos(at)[\log a-\mathrm{Ci}(at)]-\sin(at)\mathrm{Si}(at)$	$\mathrm{Re}\, s>0$
	7	$\frac{\log\frac{s}{a}}{s^2+a^2}$	$\frac{\cos(at)\mathrm{Si}(at)-\sin(at)\mathrm{Ci}(at)}{a}$	$\mathrm{Re}\, s>0$
	8	$\frac{s\log\frac{s}{a}}{s^2+a^2}$	$-\sin(at)\mathrm{Si}(at)-\cos(at)\mathrm{Ci}(at)$	$\mathrm{Re}\, s>0$
	9	$\frac{\log(s+b)}{s+a}$	$e^{-at}\lvert\log(b-a)-\mathrm{Ei}[(a-b)t]\rvert$	$\mathrm{Re}\, s>-\mathrm{Re}\, a$

		g(s)	t(f)	
4.1 (Contd.)	10	$(s+2a)\log(s+2a)+s\log s-2(s+a)\log(s+a)$	$\frac{(1-e^{-at})^2}{t^2}$	Re s > Max o, − Re 2a
	11	$\frac{1}{s}\log(\frac{s}{a}+1)$	$-\mathrm{Ei}(-at)$ $=-\mathrm{li}(e^{-at})$	$\lvert\arg a\rvert<\pi$ Re s > o
	12	$\frac{1}{s}\log(\frac{s}{a}-1)$	$-\overline{\mathrm{Ei}}(at)$ $=-\mathrm{li}(e^{at})$	Re a > o Re s > Re a
	13	$\log\frac{s-a}{s}$	$\frac{1-e^{at}}{t}$	Re s > Max o, Re a
	14	$s\log(1+\frac{a}{s})-a$	$\frac{(at+1)e^{-at}-1}{t^2}$	Re s > − Re a
	15	$(s+\frac{a}{2})\log(1+\frac{a}{s})-a$	$\frac{a}{t}-\frac{(at+2)(1-e^{-at})}{2t^2}$	Re s > − Re a
	16	$\log\frac{s+a}{s-a}$	$\frac{2\sinh(at)}{t}$	Re s > $\lvert$Re a$\rvert$
	17	$\frac{1}{s}\log\frac{s+a}{s-a}$	$2\sinh(at)$	Re s > $\lvert$Re a$\rvert$
	18	$\log\frac{s+b}{s+a}$	$\frac{e^{-at}-e^{-bt}}{t}$	Re s > Max − Re a, − Re b
	19	$s\log\frac{s+a}{s+b}+b-a$	$e^{-at}\left(\frac{a}{t}+\frac{1}{t^2}\right)-e^{-bt}\left(\frac{b}{t}+\frac{1}{t^2}\right)$	Re s > Max − Re a, − Re b

		g(s)	f(t)	
4.1 (Contd.)	20	$\frac{\log(s^2+a^2)}{s}$	$2\,\mathrm{ci}(at)+2\log a$	Re s > $\lvert$Im a$\rvert$
	21	$\frac{\log(s^2+a^2)}{s^2}$	$2t\left[\log a+\frac{\sin(at)}{at}+\mathrm{ci}(at)\right]$	Re a > o Re s > $\lvert$Im a$\rvert$
	22	$\frac{1}{s}\log(s^2-a^2)$	$2\log a-2\,\mathrm{Cih}(at)$	Re s > $\lvert$Re a$\rvert$
	23	$\frac{1}{s^2}\log(s^2-a^2)$	$-2t\,\mathrm{Cih}(at)+\frac{2}{a}\sinh(at)+2t\log a$	Re a > o Re s > Re a
	24	$\log(1+\frac{a^2}{s^2})$	$\left(\frac{2\pi a}{t}\right)^{\frac{1}{2}}H_{\frac{1}{2}}(at)$ $=2\,\frac{1-\cos(at)}{t}$	Re s > $\lvert$Im a$\rvert$
	25	$\log\left(1-\frac{a^2}{s^2}\right)$	$-\left(\frac{2\pi a}{t}\right)^{\frac{1}{2}}L_{\frac{1}{2}}(at)$ $=\frac{2[1-\cosh(at)]}{t}$	Re s > $\lvert$ke a$\rvert$
	26	$s\log\left(1+\frac{a^2}{s^2}\right)$	$\frac{2[\cos(at)-1]}{t^2}+\frac{2a\sin(at)}{t}$	Re s > $\lvert$Im a$\rvert$
	27	$s\log\left(1-\frac{a^2}{s^2}\right)$	$\frac{3}{t^2}\,[\cosh(at)-1]-\frac{2a}{t}\sinh(at)$	Re s > $\lvert$Re a$\rvert$
	28	$\frac{1}{s}\log\left(1+\frac{s^2}{a^2}\right)$	$-2\,\mathrm{Ci}(at)$ $=2\,\mathrm{ci}(at)$	Re s > $\lvert$Im a$\rvert$

		g(s)	f(t)	
4.1 (Contd.)	29	$\frac{a}{s}-\frac{s}{a}\log\left(1+\frac{a^2}{s^2}\right)$	$\left(\frac{2\pi a}{t}\right)^{\frac{1}{2}}H_{\frac{3}{2}}(at)$	Re s > |Im a|
	30	$\frac{s}{a}\log\left(1-\frac{a^2}{s^2}\right)-\frac{a}{s}$	$\left(\frac{2\pi a}{t}\right)^{\frac{1}{2}}L_{\frac{3}{2}}(at)$	Re s > |Re a|
	31	$\frac{a^2-s^2}{s^2(a^2+s^2)}+\frac{\log\left(1+\frac{a^2}{s^2}\right)}{a^2}$	$\left(\frac{2\pi t}{a}\right)^{\frac{1}{2}}H_{\frac{3}{2}}(at)$	Re s > |Im a|
	32	$\frac{s^2+a^2}{s^2(s^2-a^2)}-\frac{1}{a^2}\log\left(1-\frac{a^2}{s^2}\right)$	$\left(\frac{2\pi t}{a}\right)^{\frac{1}{2}}L_{\frac{3}{2}}(at)$	Re s > |Re a|
	33	$\frac{\log(s^2+a^2)}{s^2+a^2}$	$\frac{\sin(at)}{a}\left[\log\frac{2a}{\gamma t}-\mathrm{Ci}(2at)\right]+\frac{\cos(at)\mathrm{Si}(2at)}{a}$	Re s > |Im a|
	34	$\frac{s\log(s^2+a^2)}{s^2+a^2}$	$\cos(at)\left[\log\frac{2a}{\gamma t}-\mathrm{Ci}(2at)\right]-\sin(at)\mathrm{Si}(2at)$	Re s > |Im a|
	35	$\frac{\log(s^2-a^2)}{s^2-a^2}$	$\frac{2}{a}\left[-\log\gamma t\sinh(at)+\cosh(at)\ast\frac{\sinh(at)}{t}\right]$	Re s > |Re a|
	36	$\frac{s\log(s^2-a^2)}{s^2-a^2}$	$2\left[-\log\gamma t\cosh(at)+\sinh(at)\ast\frac{\sinh(at)}{t}\right]$	Re s > |Re a|
	37	$\log\frac{s^2+b^2}{s^2+a^2}$	$2\,\frac{\cos(at)-\cos(bt)}{t}$	Re s > Max |Im a|,|Im b|
	38	$s\log\frac{s^2+b^2}{s^2+a^2}$	$\frac{2}{t^2}[\cos(bt)+bt\sin(bt)-\cos(at)-at\sin(at)]$	Re s > Max |Im a|,|Im b|

		g(s)	f(t)	
4.1 (Contd.)	39	$\log\frac{(s+a)^2+c^2}{(s+b)^2+c^2}$	$\frac{2\cos(ct)}{t}(e^{-bt}-e^{-at})$	Re s > |Im c| − Min Re a, Re b
	40	$2\log\frac{(s^2+a^2)^2}{s^3}-\log(s^2+4a^2)$	$\frac{16}{t}\sin^4\left(\frac{at}{2}\right)$	Re s > 2|Im a|
	41	$\log\frac{s^2+as+b}{s^2-as+b}$	$\frac{4\cos[t(b-\frac{a^2}{4})^{\frac{1}{2}}]\sinh\frac{at}{2}}{t}$	Re s > |Im(b − $\frac{a^2}{4})^{\frac{1}{2}}$| + |Re $\frac{a}{2}$|
	42	$\log\frac{(s^2+a^2)(s^2+b^2)}{[s^2+(\frac{a-b}{2})^2]^2}$	$\frac{8\sin^2\left(\frac{a+b}{4}t\right)\cos\left(\frac{a-b}{2}t\right)}{t}$	Re s > Max|Im a|,|Im b|,|Im $\frac{a-b}{2}$|
4.2	1	$\frac{1}{s^{\frac{1}{2}}}\log(4\gamma s)$	$-\frac{\log t}{(\pi t)^{\frac{1}{2}}}$	Re s > o
	2	$\frac{\log s}{s^{n+\frac{1}{2}}}$	$\frac{2^n t^{n-\frac{1}{2}}}{1.3.5\ldots(2n-1)\pi^{\frac{1}{2}}}\left[2\left(1+\frac{1}{3}+\ldots+\frac{1}{2n-1}\right)-\log(4\gamma t)\right]$	n = 1,2,3,... Re s > o
	3	$\frac{\log s}{s^{\nu}}$	$\frac{t^{\nu-1}}{\Gamma(\nu)}[\psi(\nu)-\log t]$	Re ν > o Re s > o
	4	$\frac{1}{s^b\log\frac{s}{a}}$	$a^{-b+1}\nu(at,b-1)$	Re b > o Re s > Re a
	5	$\frac{1}{s^{n+\frac{1}{2}}}[2(1+\frac{1}{3}+\frac{1}{5}+\ldots+\frac{1}{2n-1})-\log(4\gamma s)]$	$\frac{2^n}{\pi^{\frac{1}{2}}.1.3.5\ldots(2n-1)}t^{n-\frac{1}{2}}\log t$	n = 1,2,3,... Re s > o

4.2 (Contd.)

	$g(s)$	$f(t)$	
6	$\frac{1}{s^{\nu}\log s}$	$\int_{\nu}^{\infty}\frac{t^{u-1}}{\Gamma(u)}\,du$	$Re\, s > 0$
7	$\frac{s^{\nu}-1}{(s^{\nu}+1)\log s}$	$\sum_{n=1}^{\infty}\left[\int_{(2n-2)\nu}^{(2n-1)\nu}\frac{t^{u-1}}{\Gamma(u)}\,du-\int_{(2n-1)\nu}^{2n\nu}\frac{t^{u-1}}{\Gamma(u)}\,du\right]$	$Re\, s > 0$
8	$\frac{s^{\nu}+1}{(s^{\nu}-1)\log s}$	$\sum_{n=1}^{\infty}(2n-1)\int_{(n-1)\nu}^{n\nu}\frac{t^{u-1}}{\Gamma(u)}\,du$	$Re\, s > 0$
9	$\frac{s^{\nu}}{(s^{2\nu}+1)\log s}$	$\sum_{n=1}^{\infty}\int_{(4n-3)\nu}^{(4n-1)\nu}\frac{t^{u-1}}{\Gamma(u)}\,du$	$Re\, s > 0$
10	$\frac{s^{\nu}}{(s^{2\nu}-1)\log s}$	$\sum_{n=1}^{\infty}n\int_{(2n-1)\nu}^{(2n+1)\nu}\frac{t^{u-1}}{\Gamma(u)}\,du$	$Re\, s > 0$
11	$\frac{s^{\nu}(s^{2\nu}-1)}{(s^{4\nu}+1)\log s}$	$\sum_{n=1}^{\infty}\left[\int_{(8n-7)\nu}^{(8n-5)\nu}\frac{t^{u-1}}{\Gamma(u)}\,du-\int_{(8n-3)\nu}^{(8n-1)\nu}\frac{t^{u-1}}{\Gamma(u)}\,du\right]$	$Re\, s > 0$
12	$\frac{\log\left[\frac{(s^2+a^2)^{\frac{1}{2}}+a}{s}\right]}{(s^2+a^2)^{\frac{1}{2}}}$	$\frac{\pi}{2}H_0(at)$	$Re\, s > \lvert Im\, a\rvert$
13	$\frac{1}{s}-\frac{s}{a(s^2+a^2)^{\frac{1}{2}}}\log\frac{(s^2+a^2)^{\frac{1}{2}}+a}{s}$	$\frac{\pi}{2}H_1(at)$	$Re\, s > \lvert Im\, a\rvert$
14	$\frac{1}{s^{\frac{1}{2}}}\log\left[\left(\frac{s}{a}\right)^{\frac{1}{2}}+\left(\frac{s}{a}+1\right)^{\frac{1}{2}}\right]$	$-\frac{Ei(-at)}{2(\pi t)^{\frac{1}{2}}}$	$Re\, s > 0$

4.2 (Contd.)

	$g(s)$	$f(t)$	
15	$\frac{\log[(s+a)^{\frac{1}{2}}+(s+b)^{\frac{1}{2}}]}{(s+b)^{\frac{1}{2}}}$	$\frac{e^{-bt}}{2\pi^{\frac{1}{2}}t^{\frac{1}{2}}}\{\log(a-b)-Ei[(b-a)t]\}$	$\lvert\arg(b-a)\rvert<\pi$ $Re\, s > -Re\, b$
16	$\frac{1}{s}\log[s+(s^2+a^2)^{\frac{1}{2}}]$	$Ji_0(at)+\log a$	$Re\, s > 0$
17	$\frac{1}{s}\log[s+(s^2-a^2)^{\frac{1}{2}}]$	$Ii_0(at)+\log a+\frac{\pi i}{2}$	$Re\, s > \lvert Re\, a\rvert$
18	$\frac{1}{s}\log^2[s+(s^2+a^2)^{\frac{1}{2}}]$	$\log a[\log a+2Ji_0(at)]-\pi Yi_0(at)$	$Re\, s > \lvert Im\, a\rvert$
19	$\frac{1}{s}\log^2[s+(s^2-a^2)^{\frac{1}{2}}]$	$\log a[\log a+i\pi+2Ii_0(at)]+2Ki_0(at)-\frac{\pi^2}{4}$	$Re\, s > \lvert Re\, a\rvert$
20	$\frac{\log[s+(s^2+a^2)^{\frac{1}{2}}]}{(s^2+a^2)^{\frac{1}{2}}}$	$\log a\, J_0(at)-\frac{\pi}{2}Y_0(at)$	$Re\, s > \lvert Im\, a\rvert$
21	$\frac{\log\frac{s+(s^2+a^2)^{\frac{1}{2}}}{a}}{(s^2+a^2)^{\frac{1}{2}}}$	$-\frac{\pi}{2}Y_0(at)$	$Re\, s > \lvert Im\, a\rvert$
22	$\frac{1+\frac{2i}{\pi}\log\frac{s+(s^2+a^2)^{\frac{1}{2}}}{a}}{(s^2+a^2)^{\frac{1}{2}}}$	$H_0^{(2)}(at)$	$Re\, s > \lvert Im\, a\rvert$
23	$\frac{1-\frac{2i}{\pi}\log\frac{s+(s^2+a^2)^{\frac{1}{2}}}{a}}{(s^2+a^2)^{\frac{1}{2}}}$	$H_0^{(1)}(at)$	$Re\, s > \lvert Im\, a\rvert$
24	$\frac{\log[s+(s^2+a^2)^{\frac{1}{2}}]}{(s^2+a^2)^{\frac{3}{2}}}$	$\frac{t}{a}[J_1(at)\log a-\frac{\pi}{2}Y_1(at)]-\frac{\cos(at)}{a^2}$	$Re\, s > \lvert Im\, a\rvert$

		$g(s)$	$f(t)$	
4.2 (Contd.)	25	$\frac{s}{(s^2+a^2)^{\frac{1}{2}}}\log[s+(s^2+a^2)^{\frac{1}{2}}]$	$t[J_0(at)\log a-\frac{\pi}{2}Y_0(at)]+\frac{\sin(at)}{a}$	$\operatorname{Re} s>\lvert\operatorname{Im} a\rvert$
	26	$\frac{\log[s+(s^2-a^2)^{\frac{1}{2}}]}{(s^2-a^2)^{\frac{1}{2}}}$	$I_0(at)\log a+K_0(at)$	$\operatorname{Re} s>\lvert\operatorname{Re} a\rvert$
	27	$\frac{\log\frac{s+(s^2-a^2)^{\frac{1}{2}}}{a}}{(s^2-a^2)^{\frac{1}{2}}}$	$K_0(at)$	$\operatorname{Re} s>-\operatorname{Re} a$
	28	$\frac{\log[s+(s^2-ia^2)^{\frac{1}{2}}]}{(s^2-ia^2)^{\frac{1}{2}}}$	$\operatorname{ker}(at)+i\operatorname{kei}(at)+\frac{\pi}{4}[\operatorname{ber}(at)+i\operatorname{bei}(at)]$ $+\log a I_0(ai^{\frac{1}{2}}t)$	$\operatorname{Re} s>\frac{\lvert\operatorname{Re} a\rvert+\lvert\operatorname{Im} a\rvert}{2^{\frac{1}{2}}}$
	29	$\frac{\log[s+(s^2-a^2)^{\frac{1}{2}}]}{(s^2-s^2)^{\frac{3}{2}}}$	$\frac{t}{a}[I_1(at)\log a-K_1(at)]+\frac{\cosh(at)}{a^2}$	$\operatorname{Re} s>\lvert\operatorname{Re} a\rvert$
	30	$\frac{s\log[s+(s^2-a^2)^{\frac{1}{2}}]}{(s^2-a^2)^{\frac{3}{2}}}$	$t[I_0(at)\log a+K_0(at)]+\frac{\sinh(at)}{a}$	$\operatorname{Re} s>\lvert\operatorname{Re} a\rvert$
	31	$\frac{s}{(s^2+a^2)^{\frac{1}{2}}}\log\frac{a+(s^2+a^2)^{\frac{1}{2}}}{s}$	$a-\frac{\pi a}{2}H_1(at)$	$\operatorname{Re} s>\lvert\operatorname{Im} a\rvert$
	32	$1-\frac{(s^2+a^2)^{\frac{1}{2}}}{a}\log\frac{(s^2+a^2)^{\frac{1}{2}}+a}{s}$	$-\frac{\pi}{2t}H_1(at)$	$\operatorname{Re} s>\lvert\operatorname{Im} a\rvert$
	33	$\frac{1}{(s^2+1)^{\frac{1}{2}}}\log\frac{[s+(s^2+1)^{\frac{1}{2}}][1+(s^2+1)^{\frac{1}{2}}]}{s}$	$\frac{\pi}{2}[H_0(t)-Y_0(t)]$	$\operatorname{Re} s>0$

		$g(s)$	$f(t)$	
4.2 (Contd.)	34	$\frac{\log\frac{[(s+b)^{\frac{1}{2}}+1][(s-b)^{\frac{1}{2}}+1]+(s+b-1)^{\frac{1}{2}}(s-b-1)^{\frac{1}{2}}}{[(s+b)^{\frac{1}{2}}+1][(s-b)^{\frac{1}{2}}+1]-(s+b-1)^{\frac{1}{2}}(s-b-1)^{\frac{1}{2}}}}{(s+b-1)^{\frac{1}{2}}(s-b-1)^{\frac{1}{2}}}$	$-\frac{1}{2}e^t I_0(bt)\operatorname{Ei}(-t)$	$\operatorname{Re} s>1+\lvert\operatorname{Re} b$
4.2.1	1	$\frac{a}{(s^2+a^2)^{\frac{3}{2}}}\left(\frac{\pi}{2}+i\log\frac{s+(s^2+a^2)^{\frac{1}{2}}}{a}\right)+\frac{is}{a(s^2+a^2)}$	$\frac{\pi}{2}tH_1^{(2)}(at)$	$\operatorname{Re} s>\lvert\operatorname{Im} a\rvert$
	2	$\frac{a}{(s^2+a^2)^{\frac{3}{2}}}\left(\frac{\pi}{2}-i\log\frac{s+(s^2+a^2)^{\frac{1}{2}}}{a}\right)-\frac{is}{a(s^2+a^2)}$	$\frac{\pi}{2}tH_1^{(1)}(at)$	$\operatorname{Re} s>\lvert\operatorname{Im} a\rvert$
	3	$\frac{s}{(s^2+a^2)^{\frac{3}{2}}}\left(\frac{\pi}{2}+i\log\frac{s+(s^2+a^2)^{\frac{1}{2}}}{a}\right)-\frac{i}{s^2+a^2}$	$\frac{\pi}{2}tH_0^{(2)}(at)$	$\operatorname{Re} s>\lvert\operatorname{Im} a\rvert$
	4	$\frac{s}{(s^2+a^2)^{\frac{3}{2}}}\left(\frac{\pi}{2}-i\log\frac{s+(s^2+a^2)^{\frac{1}{2}}}{a}\right)+\frac{i}{s^2+a^2}$	$\frac{\pi}{2}tH_0^{(1)}(at)$	$\operatorname{Re} s>\lvert\operatorname{Im} a\rvert$
	5	$\frac{1-\frac{s}{(s^2+a^2)^{\frac{1}{2}}}\log\frac{s+(s^2+a^2)^{\frac{1}{2}}}{a}}{s^2+a^2}$	$\frac{\pi}{2}tY_0(at)$	$\operatorname{Re} s>\lvert\operatorname{Im} a\rvert$
	6	$\frac{s}{a(s^2+a^2)}+\frac{a\log\frac{s+(s^2+a^2)^{\frac{1}{2}}}{a}}{(s^2+a^2)^{\frac{3}{2}}}$	$-\frac{\pi}{2}tY_1(at)$	$\operatorname{Re} s>\lvert\operatorname{Im} a$
	7	$\frac{s}{a(s^2-a^2)}-\frac{a\log\frac{s+(s^2-a^2)^{\frac{1}{2}}}{a}}{(s^2-a^2)^{\frac{3}{2}}}$	$tK_1(at)$	$\operatorname{Re} s>-\operatorname{Re}$
	8	$\frac{a\log\frac{s+(s^2-a^2)^{\frac{1}{2}}}{a}}{(s^2-a^2)^{\frac{3}{2}}}-\frac{1}{s^2-a^2}$	$tK_0(at)$	$\operatorname{Re} s>-\operatorname{Re}$

		$g(s)$	$f(t)$		
4.2.1 (Contd.)	9	$\frac{s}{(s^2-ia^2)^{\frac{3}{2}}}\log\frac{i^{-\frac{1}{2}}[s+(s^2-ia^2)^{\frac{1}{2}}]}{a}-\frac{1}{s^2-ia^2}$	$t[\mathrm{ker}(at)+i\,\mathrm{kei}(at)]$		$\mathrm{Re}(s\pm ai^{\frac{1}{2}})>0$
	10	$\frac{s}{ai^{\frac{1}{2}}(s^2-ia^2)}-\frac{ai^{\frac{1}{2}}}{(s^2-ia^2)^{\frac{3}{2}}}\log\frac{s+(s^2-ia^2)^{\frac{1}{2}}}{ai^{\frac{1}{2}}}$	$t[\mathrm{ker}_1(at)+i\,\mathrm{kei}_1(at)]$		$\mathrm{Re}(s\pm ai^{\frac{1}{2}})>0$
	11	$\frac{3s^2+a^2}{3s}-(s^2+a^2)^{\frac{1}{2}}\log\frac{(s^2+a^2)^{\frac{1}{2}}+a}{s}$	$\frac{\pi a}{2t}H_2(at)$		$\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$
	12	$\frac{a^2-6s^2}{3s^2}+\frac{a^2+2s^2}{a(s^2+a^2)^{\frac{1}{2}}}\log\frac{(s^2+a^2)^{\frac{1}{2}}+a}{s}$	$\frac{\pi a}{2}H_2(at)$		$\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$
	13	$\frac{5a^2s^2+60s^4+2a^4}{15s^3}-\frac{s(3a^2+4s^2)}{a(s^2+a^2)^{\frac{1}{2}}}\log\frac{(s^2+a^2)^{\frac{1}{2}}+a}{s}$	$\frac{\pi a^2}{2}H_3(at)$		$\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$
	14	$\frac{3a^4-60s^4-35a^2s^2}{15s^2}+\frac{1}{a}(4s^2+a^2)(s^2+a^2)^{\frac{1}{2}}\cdot\log\frac{(s^2+a^2)^{\frac{1}{2}}+a}{s}$	$\frac{3\pi a^2}{2t}H_3(at)$		$\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$
4.3.2	1	$\frac{e^{-b(s^2-ia^2)^{\frac{1}{2}}}}{(s^2-ia^2)^{\frac{1}{2}}}\log\frac{i^{-\frac{1}{2}}[s+(s^2-ia^2)^{\frac{1}{2}}]}{a}$	0 $\mathrm{ker}[a(t^2-b^2)^{\frac{1}{2}}]+i\,\mathrm{kei}[a(t^2-b^2)^{\frac{1}{2}}]$	$0<t<b$ $t>b$	$b>0$, $\mathrm{Re}(s+ai^{\frac{1}{2}})>0$
	2	$\frac{e^{-b(s^2+a^2)^{\frac{1}{2}}}\log[s+(s^2+a^2)^{\frac{1}{2}}]}{(s^2+a^2)^{\frac{1}{2}}}$	0 $\log a\,J_0[a(t^2-b^2)^{\frac{1}{2}}]-\frac{\pi}{2}Y_0[a(t^2-b^2)^{\frac{1}{2}}]$	$0<t<b$ $t>b$	$b>0$, $\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$

		$g(s)$	$f(t)$		
4.3.2 (Contd.)	3	$\frac{e^{-b(s^2-a^2)^{\frac{1}{2}}}\log[s+(s^2-a^2)^{\frac{1}{2}}]}{(s^2-a^2)^{\frac{1}{2}}}$	0 $K_0[a(t^2-b^2)^{\frac{1}{2}}]+\log a\,I_0[a(t^2-b^2)^{\frac{1}{2}}]$	$0<t<b$ $t>b$	$b>0$, $\mathrm{Re}\,s>\lvert\mathrm{Re}\,a\rvert$
	4	$\frac{e^{b[s-(s^2+a^2)^{\frac{1}{2}}]}\log[s+(s^2+a^2)^{\frac{1}{2}}]}{(s^2+a^2)^{\frac{1}{2}}}$	$\log a\,J_0[a(t^2+2bt)^{\frac{1}{2}}]-\frac{\pi}{2}Y_0[a(t^2+2bt)^{\frac{1}{2}}]$		$\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$
	5	$\frac{e^{-b(s^2-ia^2)^{\frac{1}{2}}}}{(s^2-ia^2)^{\frac{1}{2}}}\left\{\frac{is}{a}-a\left[b+\frac{1}{(s^2-ia^2)^{\frac{1}{2}}}\right]\cdot\log\frac{i^{-\frac{1}{2}}[s+(s^2-ia^2)^{\frac{1}{2}}]}{a}\right\}$	0 $i^{\frac{1}{2}}(t^2-b^2)^{\frac{1}{2}}\{\mathrm{ker}_1[a(t^2-b^2)^{\frac{1}{2}}]+i\,\mathrm{kei}_1[a(t^2-b^2)^{\frac{1}{2}}]\}$	$0<t<b$ $t>b$	$b>0$, $\mathrm{Re}(s+ai^{\frac{1}{2}})>0$
4.3.2.1	1	$\frac{e^{-b(s^2-ia^2)^{\frac{1}{2}}}}{s^2-ia^2}\left\{1+\left[bs-\frac{s}{(s^2-ia^2)^{\frac{1}{2}}}\right]\cdot\log\frac{i^{-\frac{1}{2}}[s+(s^2-ia^2)^{\frac{1}{2}}]}{a}\right\}$	0 $-t\{\mathrm{ker}[a(t^2-b^2)^{\frac{1}{2}}]+i\,\mathrm{kei}[a(t^2-b^2)^{\frac{1}{2}}]\}$	$0<t<b$ $t>b$	$b>0$, $\mathrm{Re}(s+ai^{\frac{1}{2}})>0$
5	1	$\frac{1}{s}\sin\frac{a}{s}$	$\mathrm{bei}(2a^{\frac{1}{2}}t^{\frac{1}{2}})$		$\mathrm{Re}\,s>0$
	2	$\frac{1}{s}\cos\frac{a}{s}$	$\mathrm{ber}(2a^{\frac{1}{2}}t^{\frac{1}{2}})$		$\mathrm{Re}\,s>0$
	3	$\int_0^{\frac{\pi}{2}}\frac{\sin\theta\,d\theta}{(s^2+\sin^2\theta)^{\frac{1}{2}}[s+(s^2+\sin^2\theta)^{\frac{1}{2}}]^{\nu}}$	$\left(\frac{\pi}{2t}\right)^{\frac{1}{2}}H_{\nu-\frac{1}{2}}(t)$		$\mathrm{Re}\,\nu>-1$, $\mathrm{Re}\,s>0$
	4	$\int_0^{\frac{\pi}{2}}\frac{\sin\theta\,d\theta}{(s^2-\sin^2\theta)^{\frac{1}{2}}[s+(s^2-\sin^2\theta)^{\frac{1}{2}}]^{\nu}}$	$\left(\frac{\pi}{2t}\right)^{\frac{1}{2}}L_{\nu}(t)$		$\mathrm{Re}\,\nu>-1$, $\mathrm{Re}\,s>1$

		g(s)	f(t)	
5(Contd.)	5	$\int_0^{\frac{\pi}{2}} \frac{\cos(2n\theta)\,d\theta}{(s^2+a^2\cos^2\theta)^{\frac{1}{2}}}$	$\frac{(-1)^n\pi}{2} J_n^2\left(\frac{at}{2}\right)$	$\mathrm{Re}\, s > \lvert \mathrm{Im}\, a \rvert$
	6	$\int_0^{\pi} \left[\left(\frac{s^2}{a^2}+2-2\cos\theta\right)^{\frac{1}{2}} - \frac{s}{a}\right](1+\cos\theta)\,d\theta$	$\frac{2\pi}{at^2} J_1^2(at)$	$\mathrm{Re}\, s > 0$
	7	$\int_0^{\frac{\pi}{2}} \frac{\cos^{\mu}\theta\cos(\nu\theta)\,d\theta}{(s^2+a^2\cos^2\theta)^{\mu+\frac{1}{2}}}$	$\frac{\pi^{\frac{1}{2}} t^{\mu}}{2(2a)^{\mu}\Gamma(\mu+\frac{1}{2})} J_{\frac{\mu+\nu}{2}}\left(\frac{at}{2}\right) J_{\frac{\mu-\nu}{2}}\left(\frac{at}{2}\right)$	$\mathrm{Re}\, s > \lvert \mathrm{Im}\, a \rvert$ $\mathrm{Re}\,\mu > -\frac{1}{2}$
	8	$\int_0^{\frac{\pi}{2}} \frac{\cos^{\mu+\frac{1}{2}}\theta\cos[(\mu-\frac{1}{2})\theta]\,d\theta}{(\frac{s^2}{4}+a^2\cos^2\theta)^{\mu+1}}$	$\frac{2^{\frac{1}{2}}\pi}{\Gamma(\mu+1)a^{\mu+1}} t^{\mu}\sin(at)J_{\mu}(at)$	$a > 0$ $\mathrm{Re}\,\mu > -1$ $\mathrm{Re}\, s > 0$
	9	$\int_0^{\frac{\pi}{2}} \frac{\cos^{\mu-\frac{1}{2}}\theta\cos[(\mu+\frac{1}{2})\theta]\,d\theta}{(\frac{s^2}{4}+a^2\cos^2\theta)^{\mu}}$	$\frac{2^{\frac{1}{2}}\pi}{\Gamma(\mu)a^{\mu}} t^{\mu-1}\cos(at)J_{\mu}(at)$	$a > 0$ $\mathrm{Re}\,\mu > 0$ $\mathrm{Re}\, s > 0$
	10	$\int_0^{\pi} \frac{\sin^{2\nu}\theta\,d\theta}{[b^2+(s+ia\cos\theta)^2]^{\nu+\frac{1}{2}}}$	$\frac{\pi}{(ab)^{\nu}\Gamma(\nu+1)} J_{\nu}(at)J_{\nu}(bt)$	$\mathrm{Re}\,\nu > -\frac{1}{2}$ $\mathrm{Re}\, s > \lvert \mathrm{Im}\, a\rvert + \lvert \mathrm{Im}\, b \rvert$
	11	$\int_0^{\pi} \frac{\sin^{2\nu}\theta\,d\theta}{[b^2+(s+ia\cos\theta)^2]^{\mu}}$	$\frac{2^{\mu+\nu-\frac{1}{2}}\pi^{\frac{1}{2}}\Gamma(\nu+\frac{1}{2})}{a^{\nu}b^{\mu-\frac{1}{2}}\Gamma(2\mu)} t^{\mu-\nu-\frac{1}{2}} J_{\nu}(at)J_{\mu-\frac{1}{2}}(bt)$	$\mathrm{Re}\,\mu > 0$ $\mathrm{Re}\, s > \lvert \mathrm{Im}\, a\rvert + \lvert \mathrm{Im}\, b \rvert$
5.2	1	$\frac{1}{s^{\frac{1}{2}}}\sin\frac{a}{s}$	$\frac{\sinh[(2at)^{\frac{1}{2}}]\sin[(2at)^{\frac{1}{2}}]}{(\pi t)^{\frac{1}{2}}}$	$\mathrm{Re}\, s > 0$
	2	$\frac{1}{s^{\frac{3}{2}}}\sin\frac{a}{s}$	$\frac{\cosh[(2at)^{\frac{1}{2}}]\sin[(2at)^{\frac{1}{2}}]}{(\pi a)^{\frac{1}{2}}}$	$\mathrm{Re}\, s > 0$

		g(s)	f(t)	
5.2 (Contd.)	3	$\frac{1}{s^{\nu}}\sin\frac{a}{s}$	$\left(\frac{t}{a}\right)^{\frac{\nu-1}{2}}\left[\cos\frac{3\pi(\nu-1)}{4}\mathrm{bei}_{\nu-1}[(4at)^{\frac{1}{2}}] - \sin\frac{3\pi(\nu-1)}{4}\mathrm{ber}_{\nu-1}[(4at)^{\frac{1}{2}}]\right]$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\, s > 0$
	4	$\frac{1}{s^{\nu}}\sin\frac{1}{as^{\frac{1}{2}}}$	$\frac{t^{\nu-\frac{1}{2}}{}_0F_2\left[\begin{matrix} ; -\frac{t}{4a^2} \\ \nu+\frac{1}{2}, \frac{3}{2}; \end{matrix}\right]}{a\Gamma(\nu+\frac{1}{2})}$	$\mathrm{Re}\,\nu > -\frac{1}{2}$ $\mathrm{Re}\, s > 0$
	5	$\frac{1}{s^{\frac{1}{2}}}\cos\frac{a}{s}$	$\frac{\cosh[(2at)^{\frac{1}{2}}]\cos[(2at)^{\frac{1}{2}}]}{(\pi t)^{\frac{1}{2}}}$	$\mathrm{Re}\, s > 0$
	6	$\frac{1}{s^{\frac{3}{2}}}\cos\frac{a}{s}$	$\frac{\sinh[(2at)^{\frac{1}{2}}]\cos[(2at)^{\frac{1}{2}}]}{(\pi a)^{\frac{1}{2}}}$	$\mathrm{Re}\, s > 0$
	7	$\frac{1}{s^{\nu}}\cos\frac{a}{s}$	$\left(\frac{t}{a}\right)^{\frac{\nu-1}{2}}\left[\cos\frac{3\pi(\nu-1)}{4}\mathrm{ber}_{\nu-1}[(4at)^{\frac{1}{2}}] + \sin\frac{3\pi(\nu-1)}{4}\mathrm{bei}_{\nu-1}[(4at)^{\frac{1}{2}}]\right]$	$\mathrm{Re}\,\nu > 0$ $\mathrm{Re}\, s > 0$
	8	$\frac{1}{s^{\nu}}\cos\frac{1}{as^{\frac{1}{2}}}$	$\frac{t^{\nu-1}{}_0F_2\left[\begin{matrix} ; -\frac{t}{4a^2} \\ \nu, \frac{1}{2}; \end{matrix}\right]}{\Gamma(\nu)}$	$\mathrm{Re}\,\nu > 0$ $\mathrm{Re}\, s > 0$
5.2.1	1	$\frac{1}{s^{\nu+1}}\sin\left(\frac{a^2+3\nu\pi s}{4s}\right)$	$\left(\frac{2}{a}\right)^{\nu} t^{\frac{\nu}{2}}\mathrm{bei}_{\nu}(at^{\frac{1}{2}})$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\, s > 0$
	2	$\frac{1}{s^{\nu+1}}\cos\left(\frac{a^2+3\nu\pi s}{4s}\right)$	$\left(\frac{2}{a}\right)^{\nu} t^{\frac{\nu}{2}}\mathrm{ber}_{\nu}(at^{\frac{1}{2}})$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\, s > 0$

		$g(s)$	$f(t)$	
5.3	1	$\operatorname{cosec}(s\pi)\left[\int_0^\pi e^{a\cos\theta}\cos(s\theta)\,d\theta - \pi I_s(a)\right]$	$e^{-a\cosh t}$	Re a > o Re s > $-\infty$
	2	$\dfrac{e^{-\frac{a^2+b^2}{4s}}}{s^{\nu+1}}\int_0^\pi e^{\frac{ab}{2s}\cos\theta}\sin^{2\nu}\theta\,d\theta$	$\dfrac{\pi^{\frac{1}{2}}2^{2\nu}\Gamma(\nu+\frac{1}{2})}{(ab)^\nu}J_\nu(at^{\frac{1}{2}})J_\nu(bt^{\frac{1}{2}})$	Re $\nu > -\frac{1}{2}$ Re s > o
	3	$\operatorname{cosec}(s\pi)\left[\int_0^\pi e^{i a\sin\beta\cos\theta}\cdot\right.$ $\cdot\cos(s\theta - a\cos\beta\sin\theta)\,d\theta$ $\left.-\pi e^{i\beta s}J_s(a)\right]$	$e^{-a\sinh(t+i\beta)}$	$-\frac{\pi}{2}<\beta<\frac{\pi}{2}$ $\lvert\arg a\rvert<\frac{\pi}{2}-\beta$ Re s > $-\infty$
5.3.2	1	$\frac{1}{s^{\frac{1}{2}}}e^{-as^{\frac{1}{2}}}\sin(as^{\frac{1}{2}})$	$\dfrac{\sin\frac{a^2}{2t}}{(\pi t)^{\frac{1}{2}}}$	Re s > o
	2	$\frac{1}{s^{\frac{1}{2}}}e^{-as^{\frac{1}{2}}}\cos(as^{\frac{1}{2}})$	$\dfrac{\cos\frac{a^2}{2t}}{(\pi t)^{\frac{1}{2}}}$	Re s > o
6	1	$\tan^{-1}\frac{a}{s}$	$\left(\frac{\pi a}{2t}\right)^{\frac{1}{2}}H_{-\frac{1}{2}}(at)$ $=\frac{\sin(at)}{t}$	Re s > $\lvert$Im a$\rvert$
	2	$s\tan^{-1}\frac{a}{s}-a$	$\dfrac{at\cos(at)-\sin(at)}{t^2}$	Re s > $\lvert$Im a$\rvert$
	3	$\frac{1}{s}\tan^{-1}\frac{s}{a}$	$-\operatorname{si}(at)$	Re s > $\lvert$Im a$\rvert$

		$g(s)$	$f(t)$	
6(Contd.)	4	$\frac{1}{s}\cot^{-1}\frac{s}{a}$	$\operatorname{Si}(at)$	Re s > o
	5	$3\tan^{-1}\frac{a}{s}-\tan^{-1}\frac{3a}{s}$	$\dfrac{4\sin^3(at)}{t}$	Re s > 3$\lvert$Im a$\rvert$
	6	$5\tan^{-1}\frac{a}{s}-\frac{5}{2}\tan^{-1}\frac{3a}{s}+\frac{1}{2}\tan^{-1}\frac{5a}{s}$	$\dfrac{8\sin^5(at)}{t}$	Re s > 5$\lvert$Im a$\rvert$
6.1	1	$\tan^{-1}\dfrac{s^2-as+b}{ab}$	$\dfrac{e^{at}-1}{t}\sin bt$	Re s > Max$\lvert$Im b$\rvert$, $\lvert$Im b$\rvert$ + Re a
	2	$\tan^{-1}\dfrac{2as}{s^2-a^2+b^2}$	$\dfrac{2\sin(at)\cos(bt)}{t}$	Re s > $\lvert$Im($\pm a\pm b$)$\rvert$
	3	$\tan^{-1}\dfrac{s^2-a^2}{2bs}$	$\dfrac{2\sin(bt)\cosh[(a^2-b^2)^{\frac{1}{2}}t]}{t}$	Re s > $\lvert$Im b$\rvert$ + $\lvert$Re$(a^2-b^2)^{\frac{1}{2}}\rvert$
	4	$\dfrac{s}{s^2+a^2}-\frac{1}{a}\tan^{-1}\frac{a}{s}$	$\left(\frac{a\pi t}{2}\right)^{\frac{1}{2}}H_{\frac{1}{2}}(at)$	Re s > $\lvert$Im a$\rvert$
	5	$2\tan^{-1}\frac{a}{s}-\tan^{-1}\dfrac{2as}{s^2+3a^2}$	$\frac{4}{t}\sin(at)$	Re s > 3$\lvert$Im a$\rvert$
6.2	1	$\dfrac{\sin^{-1}\frac{a}{s}}{(s^2-a^2)^{\frac{1}{2}}}$	$\frac{\pi}{2}L_0(at)$	Re s > $\lvert$Re a$\rvert$
	2	$\sin^{-1}\dfrac{a}{(s^2+a^2)^{\frac{1}{2}}}$	$\dfrac{\sin(at)}{t}$	Re s > $\lvert$Im a$\rvert$

		$g(s)$	$f(t)$	
.2 Contd.)	3	$1-\left(\frac{s^2}{a^2}-1\right)^{\frac{1}{2}}\sin^{-1}\frac{a}{s}$	$\frac{\pi}{2t}L_1(at)$	Re s > |Re a|
	4	$\frac{s}{(s^2-a^2)^{\frac{1}{2}}}\sin^{-1}\frac{a}{s}-\frac{a}{s}$	$\frac{\pi a}{2}L_1(at)$	Re s > |Re a|
	5	$\cos^{-1}\frac{s}{(s^2+a^2)^{\frac{1}{2}}}$	$\frac{\sin(at)}{t}$	Re s > |Im a|
	6	$\frac{\cos^{-1}\frac{s}{a}}{(a^2-s^2)^{\frac{1}{2}}}$	$K_0(at)$	Re s > − Re a
.2.1	1	$\frac{3s^2-a^2}{3s}-\frac{s(s^2-a^2)^{\frac{1}{2}}}{a}\sin^{-1}\frac{a}{s}$	$\frac{a\pi}{2t^2}L_2(at)$	Re s > |Re a|
	2	$\frac{2s^2-a^2}{a(s^2-a^2)^{\frac{1}{2}}}\sin^{-1}\frac{a}{s}-2-\frac{a^2}{3s^2}$	$\frac{a\pi}{2}L_2(at)$	Re s > |Re a|
	3	$\frac{5a^2s^2-60s^4-2a^4}{15s^3}+\frac{4s^3-3as}{a(s^2-a^2)^{\frac{1}{2}}}\sin^{-1}\frac{a}{s}$	$\frac{\pi a^2}{2}L_3(at)$	Re s > |Re a|
	4	$\frac{60s^4-35a^2s^2-3a^4}{15s^2}-\frac{(4s^2-a^2)(s^2-a^2)^{\frac{1}{2}}}{a}\sin^{-1}\frac{a}{s}$	$\frac{3\pi a^2}{2t}L_3(at)$	Re s > |Re a|
.4.1	1	$\log(s^2+a^2)\tan^{-1}\frac{a}{s}$	$-\frac{2}{t}\log(\gamma t)\sin(at)$	Re s > |Im a|
	2	$2a\tan^{-1}\frac{a}{s}-s\log\left(1+\frac{a^2}{s^2}\right)$	$\frac{4}{t^2}\sin^2\frac{at}{2}$	Re s > |Im a|

		$g(s)$	$f(t)$	
6.4.1 (Contd.)	3	$\frac{s\tan^{-1}\frac{2}{s}-\frac{1}{2}\log\left(1+\frac{4}{s^2}\right)}{s^2+1}$	$2\cos t\,\mathrm{si}(t)$	Re s > o
	4	$\frac{\tan^{-1}\frac{2}{s}+\frac{s}{2}\log[s^2(s^2+4)]}{s^2+1}$	$2\cos t\,\mathrm{ci}(t)$	Re s > o
	5	$\frac{s\tan^{-1}\frac{2}{s}-\frac{1}{2}\log[s^2(s^2+4)]}{s^2+1}$	$-2\sin t\,\mathrm{ci}(t)$	Re s > o
	6	$\frac{\tan^{-1}\frac{1}{s-1}+\frac{s}{2}\log(s^2-2s+2)}{s^2+1}$	$-\cos t\,\overline{\mathrm{Ei}}(t)$	Re s > 1
	7	$\frac{s\tan^{-1}\frac{1}{s-1}-\frac{1}{2}\log(s^2-2s+2)}{s^2+1}$	$\sin t\,\overline{\mathrm{Ei}}(t)$	Re s > 1
	8	$\frac{\tan^{-1}\frac{2}{s}+\frac{s}{2}\log(s^2+4)}{s^2+1}$	$\sin t\,\mathrm{si}(t)+\cos t\,\mathrm{ci}(t)$	Re s > o
	9	$\frac{s\tan^{-1}\frac{2}{s}-\frac{1}{2}\log(s^2+4)}{s^2+1}$	$-\sin t\,\mathrm{ci}(t)+\cos t\,\mathrm{si}(t)$	Re s > o
	10	$\frac{a\tan^{-1}\frac{a}{s}+\frac{s}{2}\log[\gamma^2(s^2+a^2)]}{s^2+a^2}$	$-\log t\cos(at)$	Re s > |Im a|
	11	$\frac{s\tan^{-1}\frac{a}{s}-\frac{a}{2}\log[\gamma^2(s^2+a^2)]}{s^2+a^2}$	$\log t\sin(at)$	Re s > |Im a|

		$g(s)$	$f(t)$	
6.4.1 (Contd.)	12	$\dfrac{a\tan^{-1}\frac{a}{s+1}+\frac{s}{2}\log[(s+1)^2+a^2]}{s^2+a^2}$	$-\cos(at)Ei(-t)$	$Re\, s > \lvert Im\, a \rvert$
	13	$\dfrac{s\tan^{-1}\frac{a}{s+1}-\frac{a}{2}\log[(s+1)^2+a^2]}{s^2+a^2}$	$\sin(at)Ei(-t)$	$Re\, s > \lvert Im\, a \rvert$
	14	$\dfrac{a\tan^{-1}\frac{2bs}{b^2-a^2-s^2}+\frac{s}{2}\log\frac{(b+a)^2+s^2}{(b-a)^2+s^2}}{s^2+a^2}$	$-\frac{2}{b}\cos(at)si(bt)$	$Re\, s > \lvert Im\, a \rvert$ $b \neq 0$
	15	$\dfrac{s\tan^{-1}\frac{2as}{s^2+b^2-a^2}-\frac{a}{2}\log\frac{(s^2+b^2-a^2)^2+4a^2s^2}{b^2}}{s^2+a^2}$	$-\frac{2}{b}\sin(at)ci(bt)$	$Re\, s > \lvert Im\, a \rvert$ $b \neq 0$
	16	$\dfrac{a\tan^{-1}\frac{a}{s}}{s^2+a^2}+\dfrac{s\log(s^2+a^2)}{2(s^2+a^2)}-\dfrac{\log s}{s}-\dfrac{a^2\log\gamma}{s(s^2+a^2)}$	$\log t\sin^2\frac{at}{2}$	$Re\, s > \lvert Im\, a \rvert$
	17	$2s\tan^{-1}\frac{3a}{s}-6s\tan^{-1}\frac{a}{s}+3a\log\frac{s^2+3a^2}{s^2+a^2}$	$\dfrac{8\sin^3(at)}{t^2}$	$Re\, s > 3\lvert Im\, a \rvert$
	18	$\frac{s}{2}\log\frac{s^2+a^2}{s^2+b^2}+b\tan^{-1}\frac{b}{s}-a\tan^{-1}\frac{a}{s}$	$\dfrac{\cos(at)-\cos(bt)}{t^2}$	$Re\, s > Max\lvert Im\, a \rvert,$ $\lvert Im\, b \rvert$
6.5.2	1	$\dfrac{\sin(b+\tan^{-1}\frac{a}{s})}{(s^2+a^2)^{\frac{1}{2}}}$	$\sin(at+b)$	$Re\, s > \lvert Im\, a \rvert$
	2	$\dfrac{\cos(b+\tan^{-1}\frac{a}{s})}{(s^2+a^2)^{\frac{1}{2}}}$	$\cos(at+b)$	$Re\, s > \lvert Im\, a \rvert$

		$g(s)$	$f(t)$	
6.5.2 (Contd.)	3	$\dfrac{\sin[\nu\tan^{-1}\frac{a}{s}]}{(s^2+a^2)^{\frac{\nu}{2}}}$	$\dfrac{t^{\nu-1}\sin(at)}{\Gamma(\nu)}$	$Re\,\nu > -1$ $Re\, s > \lvert Im\, a \rvert$
	4	$\dfrac{\cos[\nu\tan^{-1}\frac{a}{s}]}{(s^2+a^2)^{\frac{\nu}{2}}}$	$\dfrac{t^{\nu-1}\cos(at)}{\Gamma(\nu)}$	$Re\,\nu > 0$ $Re\, s > \lvert Im\, a \rvert$
	5	$\frac{1}{s^a}\cos\left[2n\sin^{-1}\left(\frac{1}{s^{\frac{1}{2}}}\right)\right]$	$\dfrac{t^{a-1}}{\Gamma(a)}\,{}_2F_2\left[\begin{matrix}-n,n;\\ a,\frac{1}{2};\end{matrix}\ t\right]$	$n=0,1,2,\ldots$ $Re\, a > 0$ $Re\, s > 0$
	6	$\frac{1}{s^a}\sin\left[(2n+1)\sin^{-1}\left(\frac{1}{s^{\frac{1}{2}}}\right)\right]$	$\dfrac{(2n+1)t^{a-1}}{\Gamma(a)}\,{}_2F_2\left[\begin{matrix}-n,n+1;\\ a,\frac{3}{2};\end{matrix}\ t\right]$	$n=0,1,2,\ldots$ $Re\, a > 0$ $Re\, s > 0$
6.5.4.2.1	1	$\dfrac{\sin(\nu\tan^{-1}\frac{a}{s})}{(s^2+a^2)^{\frac{\nu}{2}}}[\psi(\nu)-\frac{1}{2}\log(s^2+a^2)$ $+\tan^{-1}\frac{a}{s}\cot(\nu\tan^{-1}\frac{a}{s})]$	$\dfrac{t^{\nu-1}}{\Gamma(\nu)}\log t\sin(at)$	$Re\,\nu > -1$ $Re\, s > \lvert Im\, a \rvert$
	2	$\dfrac{\cos(\nu\tan^{-1}\frac{a}{s})}{(s^2+a^2)^{\frac{\nu}{2}}}[\psi(\nu)-\frac{1}{2}\log(s^2+a^2)$ $-\tan^{-1}\frac{a}{s}\tan(\nu\tan^{-1}\frac{a}{s})]$	$\dfrac{t^{\nu-1}}{\Gamma(\nu)}\log t\cos(at)$	$Re\,\nu > 0$ $Re\, s > \lvert Im\, a \rvert$
7	1	$\frac{1}{s}\,\mathrm{cosech}(as)$	$0 \quad 0<t<a$ $2n \quad (2n-1)a<t<(2n+1)a$	$a>0$ $Re\, s > 0$ $n=1,2,3,\ldots$
	2	$\frac{1}{s}\,\mathrm{sech}(as)$	$0 \quad 0<t<a$ $2 \quad (4n+1)a<t<(4n+3)a$ $0 \quad (4n+3)a<t<(4n+5)a$	$a>0$ $Re\, s > 0$ $n=1,2,3,\ldots$

		$g(s)$	$f(t)$	
(Contd.)	3	$\frac{1}{s}[1-\mathrm{sech}(as)]$	$\begin{cases} 1 & 0<t<a \\ -1 & (4n-3)a<t<(4n-1)a \\ 1 & (4n-1)a<t<(4n+1)a \end{cases}$	Re $s>0$ $\underline{n=1,2,3,\ldots}$ $a>0$
	4	$\frac{\cosh(as)}{s\cosh(2as)}$	$\begin{cases} 1 & (4n-3)a<t<(4n-1)a \\ 2 & (8n-5)a<t<(8n-3)a \\ 0 & \text{otherwise} \end{cases}$	Re $s>0$ $\underline{n=1,2,3,\ldots}$ $a>0$
	5	$\frac{\cosh(bs)}{s\cosh(as)}$	$1+\frac{2}{\pi}\sum_{n=1}^{\infty}\frac{(-1)^n}{n-\frac{1}{2}}\cos\frac{(n-\frac{1}{2})\pi b}{a}\cos\frac{(n-\frac{1}{2})\pi t}{a}$	$-a\leq b\leq a$ Re $s>0$
	6	$\frac{\sinh(as)}{s\cosh(2as)}$	$\begin{cases} 1 & (8n-7)a<t<(8n-5)a \\ -1 & (8n-3)a<t<(8n-1)a \\ 0 & \text{otherwise} \end{cases}$	Re $s>0$ $\underline{n=1,2,3,\ldots}$ $a>0$
	7	$\frac{\sinh(bs)}{s\cosh(as)}$	$\frac{2}{\pi}\sum_{n=1}^{\infty}\frac{(-1)^{n-1}}{n-\frac{1}{2}}\sin\frac{(n-\frac{1}{2})\pi b}{a}\sin\frac{(n-\frac{1}{2})\pi t}{a}$	$0\leq b\leq a$ Re $s>0$
	8	$\frac{\sinh(as)}{s\cosh^2(as)}$	$\begin{cases} 0 & 0<t<a \\ 4n-2 & (4n-3)a<t<(4n-1)a \\ -4n & (4n-1)a<t<(4n+1)a \end{cases}$	Re $s>0$ $\underline{n=1,2,3,\ldots}$ $a>0$
	9	$\frac{1}{s}\tanh\frac{as}{2}$	$\begin{cases} 1 & 2na<t<(2n+1)a \\ -1 & (2n+1)a<t<(2n+2)a \end{cases}$	$a>0$ Re $s>0$ $\underline{n=0,1,2,\ldots}$
	10	$\frac{1}{s}\coth as$	$2n+1 \quad 2na<t<2(n+1)a$	$a>0$ Re $s>0$ $\underline{n=0,1,2,\ldots}$

		$g(s)$	$f(t)$	
7.1	1	$\frac{1}{s^2}\,\mathrm{cosech}(as)$	$\begin{cases} 0 & 0<t<a \\ 2n(t-an) & (2n-1)a<t<(2n+1)a \end{cases}$	$a>0$ Re $s>0$ $\underline{n=1,2,3,\ldots}$
	2	$\frac{\mathrm{cosech}\,\frac{\pi s}{2a}}{s^2+a^2}$	$\frac{\lvert\cos(at)\rvert-\cos(at)}{a}$	Re $s>\lvert \mathrm{Im}\,a\rvert$
	3	$\frac{s+a\,\mathrm{cosech}(\frac{\pi s}{2a})}{s^2+a^2}$	$\lvert\cos(at)\rvert$	Re $s>\lvert \mathrm{Im}\,a\rvert$
	4	$\frac{1}{s^2}\,\mathrm{sech}(as)$	$\begin{cases} 0 & 0<t<a \\ t-(-1)^n(t-2na) & (2n-1)a<t<(2n+1)a \end{cases}$	$a>0$ Re $s>0$ $\underline{n=1,2,3,\ldots}$
	5	$\frac{\cosh(bs)}{s^2\cosh(as)}$	$t+\frac{2a}{\pi^2}\sum_{n=1}^{\infty}\frac{(-1)^n}{(n-\frac{1}{2})^2}\cos\frac{(n-\frac{1}{2})\pi b}{a}\sin\frac{(n-\frac{1}{2})\pi t}{a}$	$-a\leq b\leq a$ Re $s>0$
	6	$\frac{\sinh(as)}{s^2\cosh(2as)}$	$\begin{cases} 0 & 0<t<a \\ t-(8n+1)a & (8n+1)a<t<(8n+3)a \\ 2a & (8n+3)a<t<(8n+5)a \\ -t+(8n+7)a & (8n+5)a<t<(8n+7)a \\ 0 & (8n+7)a<t<(8n+9)a \end{cases}$	$a>0$ Re $s>0$ $\underline{n=0,1,2,\ldots}$
	7	$\frac{\sinh(bs)}{s^2\cosh(as)}$	$b+\frac{2a}{\pi^2}\sum_{n=1}^{\infty}\frac{(-1)^n}{(n-\frac{1}{2})^2}\sin\frac{(n-\frac{1}{2})\pi b}{a}\cos\frac{(n-\frac{1}{2})\pi t}{a}$	$0\leq b\leq a$ Re $s>0$
	8	$\frac{1}{s^2}\tanh(as)$	$a-(-1)^n(2an+a-t) \quad 2na<t<2(n+1)a$	$a>0$ Re $s>0$ $\underline{n=0,1,2,\ldots}$

		$g(s)$	$f(t)$	
7.1 (Contd.)	9	$\frac{1}{s^2}\coth(as)$	$(2n+1)t-2an(n+1)\qquad 2na<t<2(n+1)a$	$a>0$, $\mathrm{Re}\,s>0$, $n=0,1,2,\ldots$
	10	$\dfrac{\coth\frac{\pi s}{2a}}{s^2+a^2}$	$\dfrac{\lvert\sin(at)\rvert}{a}$	$\mathrm{Re}\,s>\lvert\mathrm{Im}\,a\rvert$
	11	$\dfrac{s\coth\frac{\pi s}{2a}}{s^2+a^2}$	$\cos(at)\qquad \frac{2n\pi}{a}<t<\frac{(2n+1)\pi}{a}$ $-\cos(at)\qquad \frac{(2n+1)\pi}{a}<t<\frac{(2n+2)\pi}{a}$	$a>0$, $\mathrm{Re}\,s>0$, $n=0,1,2,\ldots$
	12	$\frac{b}{s^2}-\frac{ab}{2s}\left(\coth\frac{as}{2}-1\right)$	$b(t-na)\qquad na<t<(n+1)a$	$a>0$, $\mathrm{Re}\,s>0$, $n=0,1,2,\ldots$
	13	$\dfrac{1+as\,\tanh(as)}{s^2\cosh(as)}$	$2t\qquad (4n-3)a<t<(4n-1)a$ $0\qquad$ otherwise	$a>0$, $\mathrm{Re}\,s>0$, $n=1,2,3,\ldots$
7.2	1	$\frac{1}{s^{\frac{1}{2}}}\sinh\frac{a}{s}$	$\dfrac{\cosh(2a^{\frac12}t^{\frac12})-\cos(2a^{\frac12}t^{\frac12})}{2(\pi t)^{\frac12}}$	$\mathrm{Re}\,s>0$
	2	$\frac{1}{s^{\frac{3}{2}}}\sinh\frac{a}{s}$	$\dfrac{\sinh(2a^{\frac12}t^{\frac12})-\sin(2a^{\frac12}t^{\frac12})}{2(a\pi)^{\frac12}}$	$\mathrm{Re}\,s>0$
	3	$\frac{1}{s^{\frac{5}{2}}}\sinh\frac{a}{s}$	$\frac{t^{\frac12}}{2a\pi^{\frac12}}[\cosh(2a^{\frac12}t^{\frac12})+\cos(2a^{\frac12}t^{\frac12})]$ $-\frac{1}{4a^{\frac32}\pi^{\frac12}}[\sinh(2a^{\frac12}t^{\frac12})+\sin(2a^{\frac12}t^{\frac12})]$	$\mathrm{Re}\,s>0$
	4	$\frac{1}{s^{\nu}}\sinh\frac{a}{s}$	$\frac{1}{2}\left(\frac{t}{a}\right)^{\frac{\nu-1}{2}}[I_{\nu-1}(2a^{\frac12}t^{\frac12})-J_{\nu-1}(2a^{\frac12}t^{\frac12})]$	$\mathrm{Re}\,\nu>-1$, $\mathrm{Re}\,s>0$

		$g(s)$	$f(t)$	
7.2 (Contd.)	5	$\mathrm{cosech}(as^{\frac12})$	$-\frac{1}{a^2}\left[\frac{\partial}{\partial\nu}\theta_4\left(\frac{\nu}{2}\middle\vert\frac{t}{a^2}\right)\right]_{\nu=0}$	$\mathrm{Re}\,s>0$
	6	$\frac{1}{s^{\frac12}}\mathrm{cosech}(as^{\frac12})$	$a^{-1}\theta_4\left(0\middle\vert\frac{t}{a^2}\right)$	$\mathrm{Re}\,s>0$
	7	$\sinh(\nu s^{\frac12})\mathrm{cosech}(as^{\frac12})$	$a^{-1}\frac{\partial}{\partial\nu}\theta_4\left(\frac{\nu}{2a}\middle\vert\frac{t}{a^2}\right)$ $=a^{-1}\frac{\partial}{\partial\nu}\theta_3\left(\frac12+\frac{\nu}{2a}\middle\vert\frac{t}{a^2}\right)$	$-a<\nu<a$, $\mathrm{Re}\,s>0$
	8	$\frac{1}{s^{\frac12}}\sinh(\nu s^{\frac12})\mathrm{cosech}(as^{\frac12})$	$-a^{-1}\hat{\theta}_4\left(\frac{\nu}{2a}\middle\vert\frac{t}{a^2}\right)$ $=-a^{-1}\hat{\theta}_3\left(\frac12+\frac{\nu}{2a}\middle\vert\frac{t}{a^2}\right)$	$-a\leq\nu\leq a$, $\mathrm{Re}\,s>0$
	9	$\frac{1}{s}\sinh(\nu s^{\frac12})\mathrm{cosech}(as^{\frac12})$	$\frac{1}{a}\int_a^{\nu+a}\theta_3\left(\frac{u}{2a}\middle\vert\frac{t}{a^2}\right)du$ $=-\frac{1}{a}\int_0^{\nu}\theta_4\left(\frac{u}{2a}\middle\vert\frac{t}{a^2}\right)du$	$-a\leq\nu\leq a$, $\mathrm{Re}\,s>0$
	10	$\dfrac{\sinh(as^{\frac12})\sinh(bs^{\frac12})}{s^{\frac12}\sinh(cs^{\frac12})}$	$\frac{2}{c}\sum_{n=1}^{\infty}(-1)^{n+1}\sin\frac{n\pi a}{c}\sin\frac{n\pi b}{c}e^{-\frac{n^2\pi^2}{c^2}t}$	$a<c$, $b<c$, $\mathrm{Re}\,s>0$
	11	$\frac{1}{s^{\frac12}}\cosh\frac{a}{s}$	$\dfrac{\cos(2a^{\frac12}t^{\frac12})+\cosh(2a^{\frac12}t^{\frac12})}{2(\pi t)^{\frac12}}$	$\mathrm{Re}\,s>0$
	12	$\frac{1}{s^{\frac32}}\cosh\frac{a}{s}$	$\dfrac{\sinh(2a^{\frac12}t^{\frac12})+\sin(2a^{\frac12}t^{\frac12})}{2(a\pi)^{\frac12}}$	$\mathrm{Re}\,s>0$

7.2 (Contd.)		$g(s)$	$f(t)$	
	13	$\frac{1}{s^{\frac{3}{2}}}\cosh\frac{a}{s}$	$\frac{t^{\frac{1}{2}}}{2a\pi^{\frac{1}{2}}}[\cosh(2a^{\frac{1}{2}}t^{\frac{1}{2}})-\cos(2a^{\frac{1}{2}}t^{\frac{1}{2}})]$ $-\frac{1}{4a^{\frac{3}{2}}\pi^{\frac{1}{2}}}[\sinh(2a^{\frac{1}{2}}t^{\frac{1}{2}})-\sin(2a^{\frac{1}{2}}t^{\frac{1}{2}})]$	$\mathrm{Re}\, s > 0$
	14	$\frac{1}{s^{\nu}}\cosh\frac{a}{s}$	$\frac{1}{2}\left(\frac{t}{a}\right)^{\frac{\nu-1}{2}}[I_{\nu-1}(2a^{\frac{1}{2}}t^{\frac{1}{2}})+J_{\nu-1}(2a^{\frac{1}{2}}t^{\frac{1}{2}})]$	$\mathrm{Re}\,\nu > 0$ $\mathrm{Re}\, s > 0$
	15	$\mathrm{sech}(as^{\frac{1}{2}})$	$-\frac{1}{a^2}\left[\frac{\partial}{\partial\nu}\theta_1\left(\frac{\nu}{2}\middle\vert\frac{t}{a^2}\right)\right]_{\nu=0}$	$\mathrm{Re}\, s > 0$
	16	$\frac{1}{s^{\frac{1}{2}}}\mathrm{sech}(as^{\frac{1}{2}})$	$a^{-1}\hat{\theta}_2\left(\frac{1}{2}\middle\vert\frac{t}{a^2}\right)$	$\mathrm{Re}\, s > 0$
	17	$\frac{1}{s}\mathrm{sech}(as^{\frac{1}{2}})$	$1-\frac{1}{a}\int_0^a\theta_1\left(\frac{u}{2a}\middle\vert\frac{t}{a^2}\right)du$	$\mathrm{Re}\, s > 0$
	18	$\cosh(\nu s^{\frac{1}{2}})\mathrm{sech}(as^{\frac{1}{2}})$	$-a^{-1}\frac{\partial}{\partial\nu}\theta_2\left(\frac{1}{2}+\frac{\nu}{2a}\middle\vert\frac{t}{a^2}\right)$ $=-a^{-1}\frac{\partial}{\partial\nu}\theta_1\left(\frac{\nu}{2a}\middle\vert\frac{t}{a^2}\right)$	$-a < \nu < a$ $\mathrm{Re}\, s > 0$
	19	$\frac{1}{s^{\frac{1}{2}}}\cosh(\nu s^{\frac{1}{2}})\mathrm{sech}(as^{\frac{1}{2}})$	$-a^{-1}\hat{\theta}_1\left(\frac{\nu}{2a}\middle\vert\frac{t}{a^2}\right)$	$-a \leq \nu \leq a$ $\mathrm{Re}\, s > 0$
	20	$\frac{1}{s}\cosh(\nu s^{\frac{1}{2}})\mathrm{sech}(as^{\frac{1}{2}})$	$1+\frac{1}{a}\int_a^{\nu}\theta_1\left(\frac{u}{2a}\middle\vert\frac{t}{a^2}\right)du$ $=1-\frac{1}{a}\int_0^{\nu+a}\theta_2\left(\frac{u}{2a}\middle\vert\frac{t}{a^2}\right)du$	$-a \leq \nu \leq a$ $\mathrm{Re}\, s > 0$

7.2 (Contd.)		$g(s)$	$f(t)$	
	21	$\sinh(\nu s^{\frac{1}{2}})\mathrm{sech}(as^{\frac{1}{2}})$	$-\frac{1}{a}\frac{\partial}{\partial\nu}\hat{\theta}_1\left(\frac{\nu}{2a}\middle\vert\frac{t}{a^2}\right)$	$-a < \nu < a$ $\mathrm{Re}\, s > 0$
	22	$\frac{1}{s^{\frac{1}{2}}}\sinh(\nu s^{\frac{1}{2}})\mathrm{sech}(as^{\frac{1}{2}})$	$-a^{-1}\theta_1\left(\frac{\nu}{2a}\middle\vert\frac{t}{a^2}\right)$ $=-a^{-1}\theta_2\left(\frac{1}{2}+\frac{\nu}{2a}\middle\vert\frac{t}{a^2}\right)$	$-a \leq \nu \leq a$ $\mathrm{Re}\, s > 0$
	23	$\frac{1}{s}\sinh(\nu s^{\frac{1}{2}})\mathrm{sech}(as^{\frac{1}{2}})$	$-\frac{1}{a}\int_0^{\nu}\hat{\theta}_1\left(\frac{u}{2a}\middle\vert\frac{t}{a^2}\right)du$ $=\frac{1}{a}\int_a^{\nu+a}\hat{\theta}_2\left(\frac{u}{2a}\middle\vert\frac{t}{a^2}\right)du$	$-a \leq \nu \leq a$ $\mathrm{Re}\, s > 0$
	24	$\cosh(\nu s^{\frac{1}{2}})\mathrm{cosech}(as^{\frac{1}{2}})$	$-a^{-1}\frac{\partial}{\partial\nu}\theta_1\left(\frac{\nu}{2a}\middle\vert\frac{t}{a^2}\right)$ $=-a^{-1}\frac{\partial}{\partial\nu}\hat{\theta}_4\left(\frac{\nu}{2a}\middle\vert\frac{t}{a^2}\right)$	$-a < \nu < a$ $\mathrm{Re}\, s > 0$
	25	$\frac{1}{s^{\frac{1}{2}}}\cosh(\nu s^{\frac{1}{2}})\mathrm{cosech}(as^{\frac{1}{2}})$	$a^{-1}\theta_4\left(\frac{\nu}{2a}\middle\vert\frac{t}{a^2}\right)$ $=a^{-1}\theta_3\left(\frac{1}{2}+\frac{\nu}{2a}\middle\vert\frac{t}{a^2}\right)$	$-a \leq \nu \leq a$ $\mathrm{Re}\, s > 0$
	26	$\frac{1}{s}\cosh(\nu s^{\frac{1}{2}})\mathrm{cosech}(as^{\frac{1}{2}})$	$\frac{1}{a}\int_0^{\nu}\hat{\theta}_4\left(\frac{u}{2a}\middle\vert\frac{t}{a^2}\right)du+\frac{1}{a}\int_0^{t}\left[\frac{\partial}{\partial w}\hat{\theta}_4\left(\frac{w}{2a}\middle\vert\frac{u}{a^2}\right)\right]du$	$-a < \nu < a$ $\mathrm{Re}\, s > 0$
	27	$\frac{1}{s^{\frac{1}{2}}}\tanh(as^{\frac{1}{2}})$	$a^{-1}\theta_2\left(0\middle\vert\frac{t}{a^2}\right)$	$\mathrm{Re}\, s > 0$
	28	$\frac{1}{s}\tanh(as^{\frac{1}{2}})$	$\int_0^1\hat{\theta}_2\left(\frac{u}{2}\middle\vert\frac{t}{a^2}\right)du$	$\mathrm{Re}\, s > 0$

		g(s)	f(t)	
7.2 (Contd.)	29	$\frac{1}{s^{\frac{1}{2}}}\coth(as^{\frac{1}{2}})$	$a^{-1}\theta_3\left(0\middle\vert\frac{t}{a^2}\right)$	Re s > 0
	30	$\frac{1}{s^{\frac{1}{2}}}\tanh(as^{\frac{1}{2}}+b)$	$\frac{e^{\frac{b^2}{a^2}t}}{a}\left[\theta_3\left(\frac{bt}{a^2}\middle\vert\frac{t}{a^2}\right)+\hat{\theta}_3\left(\frac{bt}{a^2}\middle\vert\frac{t}{a^2}\right)\right]-\frac{1}{(\pi t)^{\frac{1}{2}}}$	Re s > 0
	31	$\frac{1}{s^{\frac{1}{2}}}[\tanh(s^{\frac{1}{2}}+a^{\frac{1}{2}})+\tanh(s^{\frac{1}{2}}-a^{\frac{1}{2}})]$	$2e^{at}\theta_3(a^{\frac{1}{2}}t\vert t)$	Re s > 0
	32	$\frac{1}{s^{\frac{1}{2}}}[\tanh(s^{\frac{1}{2}}+a^{\frac{1}{2}})-\tanh(s^{\frac{1}{2}}-a^{\frac{1}{2}})+2]$	$2e^{at}\hat{\theta}_3(a^{\frac{1}{2}}t\vert t)$	Re s > 0
7.2.1	1	$\frac{1}{s-ic}\frac{\sinh(bs^{\frac{1}{2}})}{\sinh(as^{\frac{1}{2}})}$	$\frac{\sinh(bi^{\frac{1}{2}}c^{\frac{1}{2}})}{\sinh(ai^{\frac{1}{2}}c^{\frac{1}{2}})}e^{ict}+2\pi\sum_{n=1}^{\infty}\frac{n(-1)^n\sin\frac{n\pi b}{a}}{n^2\pi^2+ia^2c}e^{-\frac{n^2\pi^2}{a^2}t}$	a > b > 0 Re s > Max 0, -Im c
	2	$\frac{1}{s-ic}\frac{\cosh(bs^{\frac{1}{2}})}{\cosh(as^{\frac{1}{2}})}$	$\frac{\cosh(bi^{\frac{1}{2}}c^{\frac{1}{2}})}{\cosh(ai^{\frac{1}{2}}c^{\frac{1}{2}})}e^{ict}-2\pi\sum_{n=0}^{\infty}\frac{(n+\frac{1}{2})(-1)^n\cos\frac{(n+\frac{1}{2})\pi b}{a}}{(n+\frac{1}{2})^2\pi^2+ia^2c}e^{-\frac{(n+\frac{1}{2})^2\pi^2 t}{a^2}}$	a > b > 0 Re s > Max 0, - Im c
7.3.1	1	$\frac{(as+\frac{1}{2})e^{-as}}{s^2\sinh(as)}$	$2na-t \quad 2na<t<2(n+1)a$	Re s > 0 n = 0,1,2,...
7.3.2	1	$\frac{1}{s^{\frac{1}{2}}}e^{-as^{\frac{1}{2}}}\sinh(bs^{\frac{1}{2}})$	$\frac{e^{-\frac{(a-b)^2}{4t}}-e^{-\frac{(a+b)^2}{4t}}}{2\pi^{\frac{1}{2}}t^{\frac{1}{2}}}$	Re s > 0

		g(s)	f(t)	
7.3.2 (Contd.)	2	$\frac{e^{-\frac{a^2+b^2}{4s}}\sinh(\frac{ab}{2s})}{s^{\frac{1}{2}}}$	$\frac{\sin(at^{\frac{1}{2}})\sin(bt^{\frac{1}{2}})}{(\pi t)^{\frac{1}{2}}}$	Re s > 0
	3	$\frac{e^{-\frac{a^2+b^2}{4s}}\cosh(\frac{ab}{2s})}{s^{\frac{1}{2}}}$	$\frac{\cos(at^{\frac{1}{2}})\cos(bt^{\frac{1}{2}})}{(\pi t)^{\frac{1}{2}}}$	Re s > 0
8	1	$\coth^{-1}\frac{s}{a}$	$\left(\frac{a\pi}{2t}\right)^{\frac{1}{2}}L_{-\frac{1}{2}}(at)$ $= t^{-1}\sin(at)$	Re s > |Re a|
	2	$\frac{1}{s}\sinh^{-1}(\frac{s}{a})$	$-Ji_0(at)$	Re s > 0
	3	$\frac{1}{s}(\sinh^{-1}\frac{s}{a})^2$	$\int_{at}^{\infty}u^{-1}Y_0(u)du$	Re s > 0
8.1	1	$\frac{as}{s^2-a^2}-\coth^{-1}\frac{s}{a}$	$\left(\frac{\pi a^3}{2}\right)^{\frac{1}{2}}t^{\frac{1}{2}}L_{-\frac{3}{2}}(at)$	Re s > |Re a|
8.2	1	$\frac{\sinh^{-1}(\frac{s}{a})}{(s^2+a^2)^{\frac{1}{2}}}$	$-\frac{\pi}{2}Y_0(at)$	Re s > |Im a|
	2	$\frac{\sinh^{-1}\frac{a}{s}}{(s^2+a^2)^{\frac{1}{2}}}$	$\frac{\pi}{2}H_0(at)$	Re s > |Im a|
	3	$\frac{\frac{\pi}{2}+i\sinh^{-1}(\frac{s}{a})}{(s^2+a^2)^{\frac{1}{2}}}$	$\frac{\pi}{2}H_0^{(2)}(at)$	Re s > |Im a|
	4	$\frac{\frac{\pi}{2}-i\sinh^{-1}\frac{s}{a}}{(s^2+a^2)^{\frac{1}{2}}}$	$\frac{\pi}{2}H_0^{(1)}(at)$	Re s > |Im a|

		$g(s)$	$f(t)$	
8.2 (Contd.)	5	$\frac{\cosh^{-1}\frac{s}{a}}{(s^2-a^2)^{\frac{1}{2}}}$	$K_0(at)$	Re $s >$ − Re a
8.3.2	1	$\frac{e^{-\nu\sinh^{-1}\frac{s}{a}}}{(s^2+a^2)^{\frac{1}{2}}}$	$J_\nu(at)$	Re $\nu > -1$ Re $s >$ |Im a|
8.4.1	1	$\frac{s\tanh^{-1}\frac{a}{s}-\frac{a}{2}\log(s^2-a^2)}{s^2-a^2}$	$\log(\gamma t)\sinh(at)$	Re $s >$ |Re a|
	2	$\frac{\frac{s}{2}\log(s^2-a^2)-a\tanh^{-1}\frac{a}{s}}{s^2-a^2}$	$\log\frac{\gamma}{t}\cosh(at)$	Re $s >$ |Re a|
8.7.2	1	$\frac{\sinh(\nu\cosh^{-1}s)}{(s^2-1)^{\frac{1}{2}}}$	$\frac{\sin(\nu\pi)}{\pi}K_\nu(t)$	|Re ν| < 1 Re $s > 1$
9	1	$\frac{1}{s}A_n(1,\frac{1}{s})$	$P_n(1-2t)$	$n=0,1,2,\ldots$ Re $s > 0$
	2	$\frac{1}{s}A_n(a,-\frac{1}{s})$	$t^{n+a-1}(1+t)^n$	$n=0,1,2,\ldots$ Re $s > 0$
	3	$A_{n,\nu}(s)$	$2^\nu i^n(n+\nu)\Gamma(\nu)C_n^\nu(-it)$	$n=0,1,2,\ldots$ Re $s > 0$
	4	$\sum_{n=0}^{\infty}\frac{b^{n+1}L_n^a(s)}{(b+1)^{n+1}(n+1)}$	$(1+t)^{a-1}$ $\quad 0<t<b$ 0 $\quad t>b$	$b>0$ Re $s > -\infty$

		$g(s)$	$f(t)$	
9(Contd.)	5	$\sum_{n=0}^{\infty}L_n^{a-n}(s)\frac{b^{n+1}}{n+1}$	$(1+t)^a$ $\quad 0<t<b$ 0 $\quad t>b$	$0<b<1$ Re $s > -\infty$
	6	$O_n(\frac{s}{a})$	$\frac{a}{2}[at+(1+a^2t^2)^{\frac{1}{2}}]^n+\frac{a}{2}[at-(1+a^2t^2)^{\frac{1}{2}}]^n$	$n=0,1,2,\ldots$ Re $s > 0$
	7	$O_{2n}(s)$	$\cosh(2n\sinh^{-1}t)$	$n=0,1,2,\ldots$ Re $s > 0$
	8	$O_{2n+1}(s)$	$\sinh[(2n+1)\sinh^{-1}t]$	$n=0,1,2,\ldots$ Re $s > 0$
	9	$S_n(\frac{s}{a})$	$\frac{[at+(1+a^2t^2)^{\frac{1}{2}}]^n-[at-(1+a^2t^2)^{\frac{1}{2}}]^n}{(1+a^2t^2)^{\frac{1}{2}}}$	$n=0,1,2,\ldots$ Re $s > 0$
9.1	1	$\frac{1}{s}A_n\left(1-n,\frac{2}{s^2}\right)$	$\frac{(-2)^n(n-1)!}{(2n-1)!}H_{2n}(t)$	$n=0,1,2,\ldots$ Re $s > 0$
	2	$\frac{1}{s^2}A_n\left(1-n,\frac{2}{s^2}\right)$	$\frac{(-2)^n n!}{(2n+1)!}He_{2n+1}(t)$	$n=0,1,2,\ldots$ Re $s > 0$
	3	$\frac{1}{s^{n+1}}L_n(s)$	$\frac{(t+1)^n}{n!}P_n\left(\frac{t-1}{t+1}\right)$	$n=0,1,2,\ldots$ Re $s > 0$
	4	$\sum_{n=0}^{\infty}\frac{(-a)^n b^{n+1}L_n^{(a)}(-\frac{1}{s})}{(n+1)\Gamma(a+n+1)}$	$\frac{J_a(2t^{\frac{1}{2}})}{t^{\frac{a}{2}}}$ $\quad 0<t<b$ 0 $\quad t>b$	$b>0$ Re $s > -\infty$
	5	$\frac{1}{s}P_n(1-\frac{a}{s})$	${}_2F_2\left[\begin{matrix}-n, & n+1; & \frac{at}{2}\\ 1, & 1; & \end{matrix}\right]$	$n=0,1,2,\ldots$ Re $s > 0$

		$g(s)$	$f(t)$	
9.1 (Contd.)	6	$\dfrac{P_n(1-\frac{2}{s})}{s^{n+1}}$	$\dfrac{t^n}{n!}L_n(t)$	$n=0,1,2,\dots$ Re $s>0$
	7	$\dfrac{P_n\left(\frac{s-1}{s+1}\right)}{s+1}$	$e^{-t}\sum_{m=0}^{n} a_{mn}L_m(2t)$ where a_{mn} is given by $P_n(x)=\sum_{m=0}^{n} a_{mn}x^m$	$n=0,1,2,\dots$ Re $s>-1$
	8	$\dfrac{P_n\left(\frac{s+a}{s+b}\right)}{(s+b)^{n+1}}$	$\dfrac{t^n}{n!}e^{-bt}L_n\left[\dfrac{(b-a)t}{2}\right]$	$n=0,1,2,\dots$ Re $s>-$Re b
	9	$\dfrac{P_m\left(\frac{s-a}{s+a}\right)P_n\left(\frac{s-a}{s+a}\right)}{s+a}$	$U^{m,n}(at)$	$m,n=0,1,2,\dots$ Re $s>-$Re a
	10	$\dfrac{(s-a)^n}{s^{n+1}}P_n\left[\dfrac{s^2-as+b}{s(s-a)}\right]$	$L_n\left[\left\{\frac{a}{2}-\left(\frac{a^2}{4}-\frac{b}{2}\right)^{\frac{1}{2}}\right\}t\right]L_n\left[\left\{\frac{a}{2}+\left(\frac{a^2}{4}-\frac{b}{2}\right)^{\frac{1}{2}}\right\}t\right]$	$n=0,1,2,\dots$ Re $s>0$
	11	$\dfrac{Q_n\left(\frac{s+a}{s-a}\right)}{s-a}$	$\frac{1}{2}V_n(at)$	Re $s>0$
	12	$\dfrac{1}{s^n}T_n(1-\frac{1}{s})$	$\dfrac{(-1)^n(2t)^{n-1}}{\Gamma(2n)}He_{2n}(t^{\frac{1}{2}})$	$n=0,1,2,\dots$ Re $s>0$
	13	$\dfrac{1}{s^{n+1}}U_n(\frac{1}{s}-1)$	$\dfrac{2^{n-1}t^{n-\frac{1}{2}}}{(2n-1)!}He_{2n-1}(t^{\frac{1}{2}})$	$n=1,2,3,\dots$ Re $s>0$
9.2	1	$\dfrac{1}{s^{\frac{1}{2}}}A_n(0,\frac{1}{s})$	$\dfrac{1}{(\pi t)^{\frac{1}{2}}}T_n(1-2t)$	$n=0,1,2,\dots$ Re $s>0$

		$g(s)$	$f(t)$	
9.2 (Contd.)	2	$\dfrac{1}{s^{\frac{1}{2}}}A_n(\frac{1}{2},\frac{1}{s})$	$\dfrac{(-1)^n}{(2n)!(\pi t)^{\frac{1}{2}}}P_{2n}(t^{\frac{1}{2}})$	$n=0,1,2,\dots$ Re $s>0$
	3	$\dfrac{1}{s^{\frac{1}{2}}}A_n(\nu,\frac{1}{s})$	$(-1)^n\dfrac{n!\Gamma(\nu)}{\Gamma(n+\nu)}\dfrac{1}{(\pi t)^{\frac{1}{2}}}C_{2n}^{\nu}(t^{\frac{1}{2}})$	$n=0,1,2,\dots$ Re $s>0$
	4	$\dfrac{1}{s^{\frac{3}{2}}}A_n(\frac{3}{2},\frac{1}{s})$	$\dfrac{(-1)^n 2}{\pi^{\frac{1}{2}}(2n+1)!}P_{2n+1}(t^{\frac{1}{2}})$	$n=0,1,2,\dots$ Re $s>0$
	5	$\dfrac{1}{s^{\frac{3}{2}}}A_n(2,\frac{1}{s})$	$(-1)^n\dfrac{2t^{\frac{1}{2}}}{(n+1)\pi^{\frac{1}{2}}}U_{n+1}(2t-1)$	$n=0,1,2,\dots$ Re $s>0$
	6	$\dfrac{1}{s^{\frac{3}{2}}}A_n(\nu,\frac{1}{s})$	$\dfrac{(-1)^n n!\Gamma(\nu-1)}{\pi^{\frac{1}{2}}\Gamma(n+\nu)t^{\frac{1}{2}}}C_{2n+1}^{\nu-1}(t^{\frac{1}{2}})$	$n=0,1,2,\dots$ Re $s>0$
	7	$\dfrac{1}{s^{\frac{\nu+1}{2}}}A_n(\nu,\frac{1}{s})$	$\dfrac{(-1)^n n!\Gamma(\nu)}{\Gamma(\nu+n)\Gamma(\frac{\nu+1}{2})}t^{\frac{\nu-1}{2}}C_n^{\frac{\nu}{2}}(2t-1)$	$n=0,1,2,\dots$ Re $s>0$
	8	$\dfrac{1}{s^a}A_n(b,\frac{1}{s})$	$\dfrac{t^{a-1}}{\Gamma(a)}{}_2F_1[-n,n+b;a;t]$	$n=0,1,2,\dots$ Re $s>0$
	9	$\dfrac{C_n^{\nu}\left(\frac{1}{s^{\frac{1}{2}}}\right)}{s^{\frac{n}{2}+\nu}}$	$\dfrac{2^{\frac{n}{2}}t^{\frac{n}{2}+\nu-1}}{n!\Gamma(\nu)}He_n[(2t)^{\frac{1}{2}}]$	$n=0,1,2,\dots$ Re $s>0$
	10	$\dfrac{He_n[(2s)^{\frac{1}{2}}]}{s^{\frac{n+1}{2}}}$	$\dfrac{2^{\frac{n}{2}-1}}{(\pi t)^{\frac{1}{2}}}[(1+it^{\frac{1}{2}})^n+(1-it^{\frac{1}{2}})^n]$	$n=0,1,2,\dots$ Re $s>0$

		$g(s)$	$f(t)$	
9.2 (Contd.)	11	$\dfrac{He_{2n}[(2s)^{\frac{1}{2}}]}{s^{n+\frac{1}{2}}}$	$\dfrac{2^n}{(\pi t)^{\frac{1}{2}}}(1+t)^n\, T_n\left(\dfrac{1-t}{1+t}\right)$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	12	$\dfrac{1}{s^{\frac{1}{2}}}\left(1-\dfrac{1}{2b^2 s}\right)^{\frac{n}{2}} He_n\left[\dfrac{a}{\left(b^2-\frac{1}{2s}\right)^{\frac{1}{2}}}\right]$	$\dfrac{1}{(2\pi t)^{\frac{1}{2}}}\left[He_n\left(\dfrac{a+t^{\frac{1}{2}}}{b}\right)+He_n\left(\dfrac{a-t^{\frac{1}{2}}}{b}\right)\right]$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	13	$\dfrac{L_n^a(s)}{s^{n+b}}$	$\dfrac{t^{b-1}(1+t)^n}{\Gamma(n+b)} P_n^{a,b-1}\left(\dfrac{t-1}{t+1}\right)$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	14	$\dfrac{1}{s^b} L_n^a\left(\dfrac{c}{s}\right)$	$\dfrac{(a+1)_n\, t^{b-1}}{n!\Gamma(b)}\, {}_1F_2\left[\begin{matrix}-n; & ct\\ a+1,\ b; & \end{matrix}\right]$	$\mathrm{Re}\, b>0$ $n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	15	$\dfrac{1}{s^{\frac{1}{2}}} P_n\left(\dfrac{a}{s}\right)$	$\dfrac{He_n[(2at)^{\frac{1}{2}}]\, He_n[(-2at)^{\frac{1}{2}}]}{n!\, i^n \pi^{\frac{1}{2}} t^{\frac{1}{2}}}$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	16	$\dfrac{1}{s^{\frac{n+1}{2}}} P_n\left[\dfrac{1}{(2s)^{\frac{1}{2}}}\right]$	$\dfrac{2^{\frac{n}{2}}\, t^{\frac{n-1}{2}}}{n!\, \pi^{\frac{1}{2}}} He_n(t^{\frac{1}{2}})$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	17	$Q_n\left(\dfrac{s^{\frac{1}{2}}}{a^{\frac{1}{2}}}\right)$	$\dfrac{n\Gamma(\frac{n}{2})\, e^{\frac{at}{2}}}{4\Gamma(n+\frac{3}{2})\, a^{\frac{1}{4}} t^{\frac{3}{4}}} M_{-\frac{1}{4},\, \frac{n}{2}+\frac{1}{4}}(at)$	$n=1,2,3,\ldots$ $\mathrm{Re}\, s>\lvert\mathrm{Re}\, a\rvert$
9.2.1	1	$\dfrac{C_n^{\nu}(1-\frac{2}{s})}{s^{n+2\nu}}$	$\dfrac{\Gamma(\nu+\frac{1}{2})\, t^{n+2\nu-1}}{\Gamma(2\nu)\Gamma(n+\nu+\frac{1}{2})} L_n^{\nu-\frac{1}{2}}(t)$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	2	$\dfrac{1}{s^a} C_n^{\nu}\left(1-\dfrac{b}{s}\right)$	$\dfrac{t^{a-1}}{nB(n,2\nu)\Gamma(a)}\, {}_2F_2\left[\begin{matrix}-n,\ n+2\nu; & \frac{bt}{2}\\ \nu+\frac{1}{2},\ \ a; & \end{matrix}\right]$	$\mathrm{Re}\, a>0$ $n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$

		$g(s)$	$f(t)$	
9.2.1 (Contd.)	3	$\dfrac{C_n^{\nu}\left(\frac{s+a}{s+b}\right)}{(s+b)^{\mu}}$	$\dfrac{t^{\mu-1} e^{-bt}}{nB(n,2\nu)\Gamma(\mu)}\, {}_2F_2\left[\begin{matrix}-n,\ n+2\nu; & \frac{(b-a)t}{2}\\ \mu,\ \nu+\frac{1}{2}; & \end{matrix}\right]$	$\mathrm{Re}\, \mu>0$ $\mathrm{Re}\, \nu>0$ $n=0,1,2,\ldots$ $\mathrm{Re}\, s>-\mathrm{Re}\, b$
	4	$\dfrac{He_{2n+1}[(2s)^{\frac{1}{2}}]}{s^{n+2}}$	$2^{n+\frac{3}{2}}\left(\dfrac{t}{\pi}\right)^{\frac{1}{2}} \dfrac{(t+1)^n}{n+1} U_{n+1}\left(\dfrac{1-t}{1+t}\right)$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	5	$\dfrac{1}{s^a} P_n\left(1-\dfrac{b}{s}\right)$	$t^{a-1}\, {}_2F_2\left[\begin{matrix}-n,\ n+1; & \frac{bt}{2}\\ 1,\ \ a; & \end{matrix}\right]$	$\mathrm{Re}\, a>0$ $n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	6	$\dfrac{P_n^{a,b}(1-\frac{2}{s})}{s^{a+b+n+1}}$	$\dfrac{t^{a+b+n}}{\Gamma(a+b+n+1)} L_n^a(t)$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	7	$\dfrac{P_n\left(\frac{s+a}{s+b}\right)}{(s+b)^{\nu}}$	$\dfrac{t^{\nu-1}}{\Gamma(\nu)} e^{-bt}\, {}_2F_2\left[\begin{matrix}-n,\ n+1; & \frac{(b-a)t}{2}\\ 1,\ \ \nu; & \end{matrix}\right]$	$\mathrm{Re}\, \nu>0$ $n=0,1,2,\ldots$ $\mathrm{Re}\, s>-\mathrm{Re}\, b$
	8	$\dfrac{(a+b-s)^{\frac{n}{2}}}{(a+b+s)^{\frac{n+1}{2}}} P_n\left[2\left\{\dfrac{ab}{(a+b)^2-s^2}\right\}^{\frac{1}{2}}\right]$	$\dfrac{D_n(2a^{\frac{1}{2}}t^{\frac{1}{2}})\, D_n(2b^{\frac{1}{2}}t^{\frac{1}{2}})}{n!(\pi t)^{\frac{1}{2}}}$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>-\mathrm{Re}(a+b)$
9.3.2	1	$\dfrac{e^{-\frac{a}{s}}}{s^{n+\frac{1}{2}}} He_{2n}\left[\left(\dfrac{2a}{s}\right)^{\frac{1}{2}}\right]$	$\dfrac{(-2)^n}{\pi^{\frac{1}{2}}} t^{n-\frac{1}{2}} \cos(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	2	$\dfrac{e^{-\frac{a}{s}}}{s^{n+\nu+1}} L_n^{\nu}\left(\dfrac{a}{s}\right)$	$\dfrac{t^{\frac{\nu}{2}+n}}{n!\, a^{\frac{\nu}{2}}} J_{\nu}(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	$\mathrm{Re}(\nu+n)>-1$ $n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
9.3.2.1	1	$\dfrac{e^{-\frac{a}{s}}}{s^{n+1}} He_{2n+1}\left[\left(\dfrac{2a}{s}\right)^{\frac{1}{2}}\right]$	$(-1)^n 2^{n+\frac{1}{2}} \pi^{-\frac{1}{2}} t^n \sin(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$

		$g(s)$	$f(t)$	
9.3.2.1 (Contd.)	2	$e^{-\frac{a}{s}}\frac{(s-1)^n}{s^{\nu+n+1}}L_n^{\nu}\left[\frac{a}{s(1-s)}\right]$	$\left(\frac{t}{a}\right)^{\frac{\nu}{2}}L_n^{\nu}(t)J_{\nu}(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	$n=0,1,2,\ldots$ $\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\,s>0$
10	1	$\frac{1}{s}J_{\nu}(\frac{a}{s})$	$J_{\nu}[(2at)^{\frac{1}{2}}]I_{\nu}[(2at)^{\frac{1}{2}}]$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\,s>0$
	2	$Y_s(a)\frac{\partial J_s(a)}{\partial s}-J_s(a)\frac{\partial Y_s(a)}{\partial s}$	$\frac{2}{\pi}K_0[2a\sinh\frac{t}{2}]$	$\mathrm{Re}\,a>0$ $\mathrm{Re}\,s>-\infty$
10.1	1	$J_{\nu-s}(a)Y_{-\nu-s}(a)-J_{-\nu-s}(a)Y_{\nu-s}(a)$	$2\pi^{-2}\sin(2\nu\pi)\,K_{2\nu}[2a\sinh\frac{t}{2}]$	$\mathrm{Re}\,a>0$ $\lvert\mathrm{Re}\,\nu\rvert<\frac{1}{2}$ $\mathrm{Re}\,s>-\infty$
10.2	1	$s^{\mu}J_{\nu}(\frac{a}{s})$	$\frac{a^{\nu}t^{\nu-\mu-1}}{2^{\nu}\Gamma(\nu+1)\Gamma(\nu-\mu)}{}_0F_3\left[\nu+1,\frac{\nu-\mu}{2},\frac{\nu-\mu+1}{2};-\frac{a^2t^2}{16}\right]$	$\mathrm{Re}(\nu-\mu)>0$ $\mathrm{Re}\,s>0$
	2	$\frac{1}{s^{\mu}}J_{\nu}[(\frac{a}{s})^{\frac{1}{2}}]$	$\frac{a^{\frac{\nu}{2}}t^{\mu+\frac{\nu}{2}-1}}{2^{\nu}\Gamma(\mu+\frac{\nu}{2})\Gamma(\nu+1)}{}_0F_2\left[\mu+\frac{\nu}{2},\nu+1;-\frac{at}{4}\right]$	$\mathrm{Re}(\mu+\frac{\nu}{2})>0$ $\mathrm{Re}\,s>0$
	3	$s^{\frac{1}{2}}[J_{\nu+\frac{1}{4}}(as)J_{\nu-\frac{1}{4}}(as)+Y_{\nu+\frac{1}{4}}(as)Y_{\nu-\frac{1}{4}}(as)]$	$\left(\frac{2}{\pi}\right)^{\frac{3}{2}}\frac{e^{2\nu\sinh^{-1}\frac{t}{2a}}}{t^{\frac{1}{2}}(t^2+4a^2)^{\frac{1}{2}}}$	$\mathrm{Re}\,a>0$ $\mathrm{Re}\,s>0$
	4	$s^{\frac{1}{2}}[J_{\frac{1}{4}+\nu}(as)J_{\frac{1}{4}-\nu}(as)+Y_{\frac{1}{4}+\nu}(as)Y_{\frac{1}{4}-\nu}(as)]$	$\frac{2^{\frac{3}{2}}}{\pi^{\frac{3}{2}}t^{\frac{1}{2}}(t^2+4a^2)^{\frac{1}{2}}}\Big\{\cos[(\nu+\frac{1}{4})\pi]e^{-2\nu\sinh^{-1}\frac{t}{2a}}$ $+\sin[(\nu+\frac{1}{4})\pi]e^{2\nu\sinh^{-1}\frac{t}{2a}}\Big\}$	$\mathrm{Re}\,a>0$ $\mathrm{Re}\,s>0$

		$g(s)$	$f(t)$	
10.2 (Contd.)	5	$s^{\frac{1}{2}}[J_{\nu+\frac{1}{4}}(as)Y_{\nu-\frac{1}{4}}(as)-J_{\nu-\frac{1}{4}}(as)Y_{\nu+\frac{1}{4}}(as)]$	$\frac{2^{2\nu+\frac{3}{2}}a^{2\nu}[t+(t^2+4a^2)^{\frac{1}{2}}]^{-2\nu}}{\pi^{\frac{3}{2}}(t^3+4a^2t)^{\frac{1}{2}}}$ $=\left(\frac{2}{\pi}\right)^{\frac{3}{2}}\frac{e^{-2\nu\sinh^{-1}\frac{t}{2a}}}{(t^3+4a^2t)^{\frac{1}{2}}}$	$\mathrm{Re}\,a>0$ $\mathrm{Re}\,s>0$
	6	$s^{\frac{1}{2}}[J_{\frac{1}{4}+\nu}(as)Y_{\frac{1}{4}-\nu}(as)-J_{\frac{1}{4}-\nu}(as)Y_{\frac{1}{4}+\nu}(as)]$	$\frac{2^{\frac{3}{2}}}{\pi^{\frac{3}{2}}t^{\frac{1}{2}}(t^2+4a^2)^{\frac{1}{2}}}\Big\{\sin[(\nu+\frac{1}{4})\pi]e^{-2\nu\sinh^{-1}\frac{t}{2a}}$ $-\cos[(\nu+\frac{1}{4})\pi]e^{2\nu\sinh^{-1}\frac{t}{2a}}\Big\}$	$\mathrm{Re}\,a>0$ $\mathrm{Re}\,s>0$
10.3	1	$\frac{1}{s}e^{\frac{a^2-b^2}{s}}J_{\nu}(\frac{2ab}{s})$	$J_{\nu}(2bt^{\frac{1}{2}})I_{\nu}(2at^{\frac{1}{2}})$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\,s>0$
	2	$e^{-bs}[\frac{\pi}{2}Y_0(ibs)-\log\frac{\gamma}{2}J_0(ibs)]$	$\frac{\log\frac{4t(2b-t)}{b^2}}{\pi t^{\frac{1}{2}}(2b-t)^{\frac{1}{2}}}$ $\quad 0<t<2b$ 0 $\quad t>2b$	$b>0$ $\mathrm{Re}\,s>-\infty$
10.3.2	1	$e^{-s}J_0[(a^2-s^2)^{\frac{1}{2}}]$	$\frac{\cos[a(2t-t^2)^{\frac{1}{2}}]}{\pi(2t-t^2)^{\frac{1}{2}}}$ $\quad 0<t<2$ 0 $\quad t>2$	$\mathrm{Re}\,s>-\infty$
10.3.2.1	1	$\frac{e^{-\frac{as}{s^2+1}}}{(s^2+1)^{\frac{1}{2}}}J_{\nu}\left(\frac{a}{s^2+1}\right)$	$J_{\nu}(t)J_{2\nu}(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	$\mathrm{Re}\,\nu>-\frac{1}{2}$ $\mathrm{Re}\,s>0$
10.5	1	$\cos(as)\,J_0(as)+\sin(as)\,Y_0(as)$	$\frac{2^{\frac{1}{2}}}{\pi}\left[\frac{(t^2+4a^2)^{\frac{1}{2}}-t}{t(t^2+4a^2)}\right]^{\frac{1}{2}}$	$\mathrm{Re}\,a>0$ $\mathrm{Re}\,s>0$

		$g(s)$	$f(t)$	
10.5 (Contd.)	2	$\sin(as)\, J_0(as)-\cos(as)\, Y_0(as)$	$\frac{2^{\frac{1}{2}}}{\pi}\left[\frac{t+(t^2+4a^2)^{\frac{1}{2}}}{t(t^2+4a^2)}\right]^{\frac{1}{2}}$	Re a > o Re s > o
	3	$\cos(as)\, J_1(as)+\sin(as)\, Y_1(as)$	$-\frac{[(t^2+4a^2)^{\frac{1}{2}}-t]^{\frac{3}{2}}}{2^{\frac{1}{2}}\pi a[t(t^2+4a^2)]^{\frac{1}{2}}}$	Re a > o Re s > o
	4	$\sin(as)\, J_1(as)-\cos(as)\, Y_1(as)$	$\frac{[t+(t^2+4a^2)^{\frac{1}{2}}]^{\frac{3}{2}}}{2^{\frac{1}{2}}\pi a[t(t^2+4a^2)]^{\frac{1}{2}}}$	Re a > o Re s > o
10.5.2.1	1	$\frac{1}{s^\nu}[\cos(as+b)J_\nu(as)$ $+\sin(as+b)Y_\nu(as)]$	$-\frac{2t^{\nu-\frac{1}{2}}(t^2+4a^2)^{\frac{\nu}{2}-\frac{1}{4}}}{\pi^{\frac{1}{2}}(2a)^\nu\Gamma(\nu+\frac{1}{2})}\cdot$ $\sin[(\nu-\frac{1}{2})\cot^{-1}(\frac{t}{2a})+b]$	Re a > o Re $\nu > -\frac{1}{2}$ Re s > o
	2	$\frac{1}{s^\nu}[\sin(as+b)J_\nu(as)$ $-\cos(as+b)Y_\nu(as)]$	$\frac{2t^{\nu-\frac{1}{2}}(t^2+4a^2)^{\frac{\nu}{2}-\frac{1}{4}}}{\pi^{\frac{1}{2}}(2a)^\nu\Gamma(\nu+\frac{1}{2})}\cdot$ $\cos[(\nu-\frac{1}{2})\cot^{-1}(\frac{t}{2a})+b]$	Re a > o Re $\nu > -\frac{1}{2}$ Re s > o
11.2	1	$\frac{1}{s^{\frac{1}{2}}}H^{(1)}_\nu(\frac{s}{a})H^{(2)}_\nu(\frac{s}{a})$	$a\left(\frac{2}{\pi}\right)^{\frac{1}{2}}t^{\frac{1}{2}}P^{\frac{1}{4}}_{\nu-\frac{1}{2}}\left[\left(1+\frac{a^2t^2}{4}\right)^{\frac{1}{2}}\right]P^{-\frac{1}{4}}_{\nu-\frac{1}{2}}\left[\left(1+\frac{a^2t^2}{4}\right)^{\frac{1}{2}}\right]$	Re s > o
	2	$\frac{1}{s^\nu}H^{(1)}_\nu(as^{\frac{1}{2}})H^{(2)}_\nu(as^{\frac{1}{2}})$	$\frac{2t^{\frac{3\nu-1}{2}}e^{\frac{a^2}{2t}}}{\Gamma(\nu+\frac{1}{2})a^{2\nu+1}}W_{\frac{\nu}{2},\frac{\nu}{2}}\left(\frac{a^2}{t}\right)$	$\lvert\arg a\rvert<\pi$ Re $\nu > -\frac{1}{2}$ Re s > o
	3	$s^{\frac{1}{2}}H^{(1)}_{\frac{1}{2}+\nu}(as)\, H^{(2)}_{\frac{1}{2}-\nu}(as)$	$\frac{4e^{-\nu\pi i}\left\{\cosh\left(2\nu\sinh^{-1}\frac{t}{2a}\right)+i\sinh\left(2\nu\sinh^{-1}\frac{t}{2a}\right)\right\}}{[\pi^3t(t^2+4a^2)]^{\frac{1}{2}}}$	Re a > o Re s > o

		$g(s)$	$f(t)$	
11.2 (Contd.)	4	$\frac{1}{s^b}H^{(1)}_\mu(\frac{s}{a})H^{(2)}_\nu(\frac{s}{a})$	$\frac{2a\,e^{\frac{\nu-\mu}{2}\pi i}t^b}{\pi\Gamma(b+1)}{}_4F_3\left[\begin{matrix}\frac{1+\mu+\nu}{2},\frac{1-\mu+\nu}{2},\frac{1+\mu-\nu}{2},\frac{1-\mu-\nu}{2}; \\ \frac{1}{2},\frac{b+1}{2},\frac{b}{2}+1;\end{matrix}-\frac{a^2t^2}{4}\right]$ $+\frac{ia^2(\mu^2-\nu^2)e^{\frac{\nu-\mu}{2}\pi i}t^{b+1}}{\pi\Gamma(b+2)}\cdot$ ${}_4F_3\left[\begin{matrix}1+\frac{\mu+\nu}{2},1+\frac{\nu-\mu}{2},1-\frac{\mu+\nu}{2},1+\frac{\mu-\nu}{2}; \\ \frac{3}{2},\frac{b}{2}+1,\frac{b+3}{2};\end{matrix}-\frac{a^2t^2}{4}\right]$	Re b > - 1 Re s > o
	5	$s^{\frac{1}{2}}\left[e^{\nu\pi i}H^{(1)}_{\frac{1}{2}+\nu}(as)\, H^{(2)}_{\frac{1}{2}-\nu}(as)\right.$ $\left.+e^{-\nu\pi i}H^{(1)}_{\frac{1}{2}-\nu}(as)\, H^{(2)}_{\frac{1}{2}+\nu}(as)\right]$	$\frac{8\cosh(2\nu\sinh^{-1}\frac{t}{2a})}{\pi^{\frac{3}{2}}t^{\frac{1}{2}}(t^2+4a^2)^{\frac{1}{2}}}$	$\lvert\arg a\rvert<\pi$ Re s > o
	6	$s^{\frac{1}{2}}\left[e^{\nu\pi i}H^{(1)}_{\frac{1}{2}+\nu}(as)\, H^{(2)}_{\frac{1}{2}-\nu}(as)\right.$ $\left.-e^{-\nu\pi i}H^{(1)}_{\frac{1}{2}-\nu}(as)\, H^{(2)}_{\frac{1}{2}+\nu}(as)\right]$	$\frac{8i\sinh(2\nu\sinh^{-1}\frac{t}{2a})}{\pi^{\frac{3}{2}}t^{\frac{1}{2}}(t^2+4a^2)^{\frac{1}{2}}}$	$\lvert\arg a\rvert<\pi$ Re s > o
	7	$s^{\frac{1}{2}}\left[H^{(1)}_{\mu+\frac{1}{2}}(as^{\frac{1}{2}})\, H^{(2)}_{\mu-\frac{1}{2}}(as^{\frac{1}{2}})\right.$ $\left.+H^{(1)}_{\mu-\frac{1}{2}}(as^{\frac{1}{2}})\, H^{(2)}_{\mu+\frac{1}{2}}(as^{\frac{1}{2}})\right]$	$\frac{4\mu}{a\pi^{\frac{3}{2}}}\frac{e^{\frac{a^2}{2t}}}{t}W_{-\frac{1}{2},\mu}\left(\frac{a^2}{t}\right)$	$\lvert\arg a^2\rvert<\pi$ Re s > o
	8	$s^a\left[e^{(\mu-\nu)\pi i}H^{(1)}_{2\mu}(\frac{s}{b})\, H^{(2)}_{2\nu}(\frac{s}{b})\right.$ $\left.+e^{(\nu-\mu)\pi i}H^{(2)}_{2\mu}(\frac{s}{b})\, H^{(1)}_{2\nu}(\frac{s}{b})\right]$	$\frac{4b}{\pi\Gamma(1-a)t^a}{}_4F_3\left[\begin{matrix}\frac{1}{2}+\mu+\nu,\frac{1}{2}-\mu+\nu,\frac{1}{2}+\mu-\nu,\frac{1}{2}-\mu-\nu; \\ \frac{1}{2},\frac{1-a}{2},1-\frac{a}{2};\end{matrix}-\frac{b^2t^2}{4}\right]$	Re(1-a) > o Re b > o Re s > o
	9	$s^a\left[e^{(\mu-\nu)\pi i}H^{(1)}_{2\mu}(\frac{s}{b})\, H^{(2)}_{2\nu}(\frac{s}{b})\right.$ $\left.-e^{(\nu-\mu)\pi i}H^{(2)}_{2\mu}(\frac{s}{b})\, H^{(1)}_{2\nu}(\frac{s}{b})\right]$	$\frac{8ib^2(\mu^2-\nu^2)}{\pi\Gamma(2-a)}t^{1-a}\cdot$ ${}_4F_3\left[\begin{matrix}1+\mu+\nu,1-\mu+\nu,1+\mu-\nu,1-\mu-\nu; \\ \frac{3}{2},1-\frac{a}{2},\frac{3-a}{2};\end{matrix}-\frac{b^2t^2}{4}\right]$	Re b > o Re$(1-\frac{a}{2})$ > o Re s > o

		$g(s)$	$f(t)$	
11.2.1	1	$s^{\frac{1}{2}} H^{(1)}_{\frac{1}{8}}\left(\frac{s^2}{a}\right) H^{(2)}_{\frac{1}{8}}\left(\frac{s^2}{a}\right)$	$\frac{2^{\frac{1}{2}} a \cos\left(\frac{\pi}{8}\right)}{\pi^{\frac{1}{2}}} t^{\frac{1}{2}} J_{\frac{1}{8}}\left(\frac{at^2}{16}\right) J_{-\frac{1}{8}}\left(\frac{at^2}{16}\right)$	$a > 0$ $\mathrm{Re}\, s > 0$
11.3.2	1	$\frac{1}{s^{\nu}} e^{-ias} H^{(1)}_{\nu}(as)$	$-\frac{2i(t^2-2ait)^{\nu-\frac{1}{2}}}{\pi^{\frac{1}{2}}(2a)^{\nu}\Gamma(\nu+\frac{1}{2})}$ $= -\frac{2i\, t^{\nu-\frac{1}{2}}(4a^2+t^2)^{\frac{\nu}{2}-\frac{1}{4}}}{\pi^{\frac{1}{2}}\,(2a)^{\nu}\Gamma(\nu+\frac{1}{2})} e^{-i(\nu-\frac{1}{2})\cot^{-1}\frac{t}{2a}}$	$\mathrm{Re}\,\nu > -\frac{1}{2}$ $-\frac{\pi}{2} < \arg a < \frac{3\pi}{2}$ $\mathrm{Re}\, s > 0$
	2	$\frac{1}{s^{\nu}} e^{ias} H^{(2)}_{\nu}(as)$	$\frac{i(t^2+2ait)^{\nu-\frac{1}{2}}}{\pi^{\frac{1}{2}} 2^{\nu-1} a^{\nu}\Gamma(\nu+\frac{1}{2})}$	$\mathrm{Re}\,\nu > -\frac{1}{2}$ $-\frac{3\pi}{2} < \arg a < \frac{\pi}{2}$ $\mathrm{Re}\, s > 0$
	3	$\frac{e^{is} H^{(2)}_{\nu}[(s^2+a^2)^{\frac{1}{2}}]}{(s^2+a^2)^{\frac{\nu}{2}}}$	$\frac{i2^{\frac{1}{2}}}{\pi^{\frac{1}{2}} a^{\nu-\frac{1}{2}}} (t^2+2it)^{\frac{\nu}{2}-\frac{1}{4}} J_{\nu-\frac{1}{2}}[a(t^2+2it)^{\frac{1}{2}}]$	$\mathrm{Re}\,\nu > -\frac{1}{2}$ $\mathrm{Re}\, s > \lvert \mathrm{Im}\, a \rvert$
12	1	$I_{\nu}\left(\frac{a}{s}\right)$	$\left(\frac{a}{2t}\right)^{\frac{1}{2}} Z^{(b)}_{\nu}[(2at)^{\frac{1}{2}}]$	$\mathrm{Re}\,\nu > 0$ $\mathrm{Re}\, s > 0$
	2	$s I_{\nu}\left(\frac{a}{s}\right)$	$\frac{a^2}{4} V^{(b)}_{\nu}[(2at)^{\frac{1}{2}}]$	$\mathrm{Re}\,\nu > 1$ $\mathrm{Re}\, s > 0$
	3	$\frac{1}{s} I_{\nu}\left(\frac{a}{s}\right)$	$X^{(b)}_{\nu}[(2at)^{\frac{1}{2}}]$ $= J_{\nu}[(-2iat)^{\frac{1}{2}}]\, J_{\nu}[(2iat)^{\frac{1}{2}}]$	$\mathrm{Re}\,\nu > -1$ $\mathrm{Re}\, s > 0$

		$g(s)$	$f(t)$		
12 (Contd.)	4	$I_{-\nu}(s) - I_{\nu}(s)$	0 $\frac{2\sin(\nu\pi)\cosh(\nu\cosh^{-1}t)}{\pi(t^2-1)^{\frac{1}{2}}}$	$0 < t < 1$ $t > 1$	$\mathrm{Re}\, s > 0$
12.1	1	$\frac{1}{s^2} I_{\nu}\left(\frac{a}{s}\right)$	$\left(\frac{2t}{a}\right)^{\frac{1}{2}} W^{(b)}_{\nu}[(2at)^{\frac{1}{2}}]$		$\mathrm{Re}\,\nu > -2$ $\mathrm{Re}\, s > 0$
	2	$s^n I_{\nu}\left(\frac{2}{s}\right)$	$\frac{d^{n+1}}{dt^{n+1}} X^{(b)}_{\nu}(2t^{\frac{1}{2}})$		$\mathrm{Re}\,\nu > n$ $n = 0,1,2,\ldots$ $\mathrm{Re}\, s > 0$
12.2	1	$\frac{1}{s^{\mu}} I_{\nu}\left(\frac{a}{s}\right)$	$\frac{a^{\nu} t^{\mu+\nu-1}}{2^{\nu}\Gamma(\nu+1)\Gamma(\mu+\nu)}\, {}_0F_3\left[\begin{matrix} ; \\ \nu+1, \frac{\mu+\nu}{2}, \frac{\mu+\nu+1}{2}; \end{matrix} \frac{a^2t^2}{16}\right]$		$\mathrm{Re}(\mu+\nu) > 0$ $\mathrm{Re}\, s > 0$
	2	$s^{\frac{1}{2}}[I_{\nu-\frac{1}{4}}(as) I_{-\nu-\frac{1}{4}}(as) - I_{\nu+\frac{1}{4}}(as) I_{-\nu+\frac{1}{4}}(as)]$	$\left(\frac{2}{\pi}\right)^{\frac{1}{2}} \frac{\cos(2\nu\cos^{-1}\frac{t}{2a})}{t^{\frac{1}{2}}(4a^2-t^2)^{\frac{1}{2}}}$ 0	$0 < t < 2a$ $t > 2a$	$\mathrm{Re}\, s > -\infty$
12.3	1	$e^{-as} I_0(as)$	$\frac{1}{\pi(2at-t^2)^{\frac{1}{2}}}$ 0	$0 < t < 2a$ $t > 2a$	$a > 0$ $\mathrm{Re}\, s > -\infty$
	2	$e^{-as} I_1(as)$	$\frac{a-t}{\pi a(2at-t^2)^{\frac{1}{2}}}$ 0	$0 < t < 2a$ $t > 2a$	$a > 0$ $\mathrm{Re}\, s > -\infty$
	3	$\frac{1}{s} e^{-\frac{a^2+b^2}{4s}} I_{\frac{1}{2}}\left(\frac{ab}{2s}\right)$	$\frac{2}{\pi} \frac{\sin(at^{\frac{1}{2}})\sin(bt^{\frac{1}{2}})}{(abt)^{\frac{1}{2}}}$		$\mathrm{Re}\, s > 0$

		$g(s)$	$f(t)$		
12.3 (Contd.)	4	$\frac{1}{s}e^{-\frac{a^2+b^2}{4s}}I_{-\frac{1}{2}}\left(\frac{ab}{2s}\right)$	$\frac{2}{\pi}\frac{\cos(at^{\frac{1}{2}})\cos(bt^{\frac{1}{2}})}{(abt)^{\frac{1}{2}}}$		$\mathrm{Re}\, s>0$
	5	$e^{-\frac{1}{2}(a+b)s}\,I_n[\tfrac{1}{2}(b-a)s]$	0	$0<t<a$	$b>a\geq 0$ $\mathrm{Re}\, s>-\infty$
			$\frac{\cos\left(n\cos^{-1}\frac{2t-a-b}{b-a}\right)}{\pi(t-a)^{\frac{1}{2}}(b-t)^{\frac{1}{2}}}$	$a<t<b$	
			0	$t>b$	
	6	$\frac{1}{s}e^{\frac{a}{s}}I_\nu\left(\frac{a}{s}\right)$	$I_\nu^2[(2at)^{\frac{1}{2}}]$		$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\, s>0$
	7	$\frac{1}{s}e^{-\frac{a}{s}}I_\nu\left(\frac{a}{s}\right)$	$J_\nu^2[(2at)^{\frac{1}{2}}]$		$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\, s>0$
	8	$\frac{1}{s}e^{-\frac{a^2+b^2}{s}}I_\nu\left(\frac{2ab}{s}\right)$	$J_\nu(2at^{\frac{1}{2}})J_\nu(2bt^{\frac{1}{2}})$		$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\, s>0$
	9	$\frac{1}{s}e^{\frac{a^2+b^2}{s}}I_\nu\left(\frac{2ab}{s}\right)$	$I_\nu(2at^{\frac{1}{2}})\,I_\nu(2bt^{\frac{1}{2}})$		$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\, s>0$
	10	$e^{-\frac{a}{s}}\left[I_\nu\left(\frac{a}{s}\right)+2\sum_{n=1}^{\infty}I_{\nu+n}\left(\frac{a}{s}\right)\right]$	$\frac{\nu}{t}J_\nu^2[(2at)^{\frac{1}{2}}]$		$\mathrm{Re}\,\nu>0$ $\mathrm{Re}\, s>0$
12.3.1	1	$\frac{1}{s}e^{-\frac{1}{s^2}}I_\nu\left(\frac{1}{s^2}\right)$	$\frac{2^{\frac{7}{4}-\nu}}{\Gamma(2\nu+1)\Gamma(\nu+1)t^{\frac{1}{2}}}\frac{d}{dt}\left\{t^{2\nu}{}_0F_2\left[\begin{matrix} & ; \\ 2\nu+1,\nu+1; & -\frac{t^2}{2}\end{matrix}\right]\right\}$		$\mathrm{Re}\,\nu>0$ $\mathrm{Re}\, s>0$
	2	$\frac{1}{s^2}e^{-\frac{1}{s^2}}I_\nu\left(\frac{1}{s^2}\right)$	$\frac{t^{2\nu}}{2^{\nu-\frac{1}{2}}\Gamma(2\nu+1)\Gamma(\nu+1)}\,{}_0F_2\left[\begin{matrix} & ; \\ 2\nu+1,\nu+1; & -\frac{t^2}{2}\end{matrix}\right]$		$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\, s>0$

		$g(s)$	$f(t)$		
12.3.2	1	$\frac{1}{s^{\frac{1}{2}}}e^{\frac{a}{s}}I_0\left(\frac{a}{s}\right)$	$\frac{I_0[(8at)^{\frac{1}{2}}]}{(\pi t)^{\frac{1}{2}}}$		$\mathrm{Re}\, s>0$
	2	$e^{-s}\,I_0[(s^2-a^2)^{\frac{1}{2}}]$	$\frac{\cos[a(2t-t^2)^{\frac{1}{2}}]}{\pi(2t-t^2)^{\frac{1}{2}}}$	$0<t<2$	$\mathrm{Re}\, s>-\infty$
			0	$t>2$	
	3	$\frac{1}{s^{\frac{1}{2}}}e^{\frac{a}{s}}I_{\frac{1}{4}}\left(\frac{a}{s}\right)$	$\frac{\sinh[(8at)^{\frac{1}{2}}]}{\pi(2a)^{\frac{1}{4}}t^{\frac{3}{4}}}$		$\mathrm{Re}\, s>0$
	4	$\frac{1}{s^{\frac{1}{2}}}e^{-\frac{a}{s}}I_{\frac{1}{4}}\left(\frac{a}{s}\right)$	$\frac{\sin[(8at)^{\frac{1}{2}}]}{\pi(2a)^{\frac{1}{4}}t^{\frac{3}{4}}}$		$\mathrm{Re}\, s>0$
	5	$\frac{1}{s^{\frac{1}{2}}}e^{\frac{a}{s}}I_{-\frac{1}{4}}\left(\frac{a}{s}\right)$	$\frac{\cosh[(8at)^{\frac{1}{2}}]}{\pi(2a)^{\frac{1}{4}}t^{\frac{3}{4}}}$		$\mathrm{Re}\, s>0$
	6	$\frac{1}{s^{\frac{1}{2}}}e^{-\frac{a}{s}}I_{-\frac{1}{4}}\left(\frac{a}{s}\right)$	$\frac{\cos[(8at)^{\frac{1}{2}}]}{\pi(2a)^{\frac{1}{4}}t^{\frac{3}{4}}}$		$\mathrm{Re}\, s>0$
	7	$\frac{1}{s^{\frac{1}{2}}}e^{\frac{a}{s}}I_{\frac{3}{4}}\left(\frac{a}{s}\right)$	$\frac{\cosh[(8at)^{\frac{1}{2}}]}{\pi(2a)^{\frac{1}{4}}t^{\frac{3}{4}}}-\frac{\sinh[(8at)^{\frac{1}{2}}]}{2\pi(2a)^{\frac{3}{4}}t^{\frac{5}{4}}}$		$\mathrm{Re}\, s>0$
	8	$\frac{1}{s^{\frac{1}{2}}}e^{-\frac{a}{s}}I_{\frac{3}{4}}\left(\frac{a}{s}\right)$	$\frac{\sin[(8at)^{\frac{1}{2}}]}{2\pi(2a)^{\frac{3}{4}}t^{\frac{5}{4}}}-\frac{\cos[(8at)^{\frac{1}{2}}]}{\pi(2a)^{\frac{1}{4}}t^{\frac{3}{4}}}$		$\mathrm{Re}\, s>0$
	9	$\frac{1}{s^{\frac{1}{2}}}e^{\frac{a}{s}}I_{-\frac{3}{4}}\left(\frac{a}{s}\right)$	$\frac{\sinh[(8at)^{\frac{1}{2}}]}{\pi(2a)^{\frac{1}{4}}t^{\frac{3}{4}}}-\frac{\cosh[(8at)^{\frac{1}{2}}]}{2\pi(2a)^{\frac{3}{4}}t^{\frac{5}{4}}}$		$\mathrm{Re}\, s>0$

		$g(s)$	$f(t)$		
12.3.2 (Contd.)	10	$\frac{1}{s^{\frac{1}{2}}} e^{-\frac{a}{s}} I_{-\frac{3}{4}}(\frac{a}{s})$	$-\frac{\sin[(8at)^{\frac{1}{2}}]}{\pi(2a)^{\frac{1}{4}}t^{\frac{3}{4}}} - \frac{\cos[(8at)^{\frac{1}{2}}]}{2\pi(2a)^{\frac{3}{4}}t^{\frac{5}{4}}}$		Re $s > 0$
	11	$\frac{1}{s^{\frac{1}{2}}} e^{\frac{1}{s}} I_{\frac{3}{4}}(\frac{1}{s})$	$\left(\frac{3}{8t}+1\right)\frac{\sinh[(8t)^{\frac{1}{2}}]}{\pi 2^{\frac{1}{4}}t^{\frac{3}{4}}} - \frac{3\cosh[(8t)^{\frac{1}{2}}]}{2^{\frac{7}{4}}\pi t^{\frac{5}{4}}}$		Re $s > 0$
	12	$\frac{1}{s^{\frac{1}{2}}} e^{-\frac{1}{s}} I_{\frac{3}{4}}(\frac{1}{s})$	$\left(\frac{3}{8t}-1\right)\frac{\sin[(8t)^{\frac{1}{2}}]}{\pi 2^{\frac{1}{4}}t^{\frac{3}{4}}} - \frac{3\cos[(8t)^{\frac{1}{2}}]}{2^{\frac{7}{4}}\pi t^{\frac{5}{4}}}$		Re $s > 0$
	13	$\frac{1}{s^{\frac{1}{2}}} e^{\frac{1}{s}} I_{-\frac{3}{4}}(\frac{1}{s})$	$\left(\frac{3}{8t}+1\right)\frac{\cosh[(8t)^{\frac{1}{2}}]}{\pi 2^{\frac{1}{4}}t^{\frac{3}{4}}} - \frac{3\sinh[(8t)^{\frac{1}{2}}]}{2^{\frac{7}{4}}\pi t^{\frac{5}{4}}}$		Re $s > 0$
	14	$\frac{1}{s^{\frac{1}{2}}} e^{-\frac{1}{s}} I_{-\frac{3}{4}}(\frac{1}{s})$	$\left(\frac{3}{8t}-1\right)\frac{\cos[(8t)^{\frac{1}{2}}]}{\pi 2^{\frac{1}{4}}t^{\frac{3}{4}}} + \frac{3\sin[(8t)^{\frac{1}{2}}]}{2^{\frac{7}{4}}\pi t^{\frac{5}{4}}}$		Re $s > 0$
	15	$\frac{e^{-s}}{s^{\frac{1}{2}}} I_{n+\frac{1}{2}}(s)$	$\frac{1}{(2\pi)^{\frac{1}{2}}}P_n(1-t)$	$0 < t < 2$	$n = 0,1,2,\dots$ Re $s > -\infty$
			0	$t > 2$	
	16	$e^{-bs}s^{\nu}I_{\nu}(bs)$	$\frac{\Gamma(\nu+\frac{1}{2})(2b)^{\nu}\cos(2\pi\nu)}{\pi^{\frac{3}{2}}(2bt-t^2)^{\nu+\frac{1}{2}}}$	$0 < t < 2b$	Re $\nu < \frac{1}{2}$ $b > 0$ Re $s > 0$
			$\frac{-\Gamma(\nu+\frac{1}{2})(2b)^{\nu}\sin(2\pi\nu)}{\pi^{\frac{3}{2}}(t^2-2bt)^{\nu+\frac{1}{2}}}$	$t > 2b$	
	17	$\frac{1}{s^{\nu}} e^{-bs} I_{\nu}(bs)$	$\frac{(2bt-t^2)^{\nu-\frac{1}{2}}}{\pi^{\frac{1}{2}}\Gamma(\nu+\frac{1}{2})(2b)^{\nu}}$	$0 < t < 2b$	$b > 0$ Re $\nu > -\frac{1}{2}$
			0	$t > 2b$	Re $s > -\infty$

		$g(s)$	$f(t)$		
12.3.2 (Contd.)	18	$\frac{1}{s^{\frac{1}{2}}} e^{\frac{a}{s}} I_{\nu}(\frac{a}{s})$	$\frac{I_{2\nu}[(8at)^{\frac{1}{2}}]}{(\pi t)^{\frac{1}{2}}}$		Re $\nu > -\frac{1}{2}$ Re $s > 0$
	19	$\frac{1}{s^{\frac{1}{2}}} e^{-\frac{a}{s}} I_{\nu}(\frac{a}{s})$	$\frac{J_{2\nu}[(8at)^{\frac{1}{2}}]}{(\pi t)^{\frac{1}{2}}}$		Re $\nu > -\frac{1}{2}$ Re $s > 0$
	20	$\frac{1}{s^{\frac{3}{2}}} e^{-\frac{1}{s}} I_{\nu}(\frac{1}{s})$	$\frac{1}{\pi^{\frac{1}{2}}}\int_0^t \frac{J_{2\nu}[(8u)^{\frac{1}{2}}]du}{u^{\frac{1}{2}}} = \frac{1}{\pi^{\frac{1}{2}}}\sum_{n=0}^{\infty} J_{2\nu+2n+1}[(8t)^{\frac{1}{2}}]$		Re $\nu > -\frac{3}{2}$ Re $s > 0$
	21	$\frac{1}{s^{\frac{3}{2}}} e^{\frac{1}{s}} I_{\nu}(\frac{1}{s})$	$\frac{1}{\pi^{\frac{1}{2}}}\int_0^t \frac{I_{2\nu}[(8u)^{\frac{1}{2}}]du}{u^{\frac{1}{2}}} = \frac{1}{\pi^{\frac{1}{2}}}\sum_{n=0}^{\infty} I_{2\nu+2n+1}[(8t)^{\frac{1}{2}}]$		Re $\nu > -\frac{3}{2}$ Re $s > 0$
	22	$\frac{1}{s^{\mu}} e^{\frac{a}{s}} I_{\nu}(\frac{a}{s})$	$\frac{a^{\nu}t^{\mu+\nu-1}}{2^{\nu}\Gamma(\nu+1)\Gamma(\mu+\nu)}\,{}_1F_2\left[\begin{matrix}\nu+\frac{1}{2};\\ 2\nu+1,\ \mu+\nu;\end{matrix}\ 2at\right]$		Re$(\mu+\nu) > 0$ Re $s > 0$
	23	$\frac{e^{-\frac{a}{s}}}{s^{\mu}} I_{\nu}(\frac{a}{s})$	$\frac{a^{\nu}t^{\mu+\nu-1}}{2^{\nu}\Gamma(\nu+1)\Gamma(\mu+\nu)}\,{}_1F_2\left[\begin{matrix}\nu+\frac{1}{2};\\ 2\nu+1,\ \mu+\nu;\end{matrix}\ -2at\right]$		Re$(\mu+\nu) > 0$ Re $s > 0$
	24	$\frac{1}{s^{\nu}} e^{-as} I_{\nu+n}(as)$	$\frac{(-1)^n n!\Gamma(\nu)2^{\nu}}{\pi\Gamma(2\nu+n)a^{\nu}}[t(2a-t)]^{\nu-\frac{1}{2}} C_n^{\nu}\left(\frac{t}{a}-1\right)$	$0 < t < 2a$	$a > 0$ Re $\nu > -\frac{1}{2}$
			0	$t > 2a$	$n = 0,1,2,\dots$ Re $s > -\infty$
	25	$\frac{1}{s^{\frac{3}{2}}} e^{\frac{a}{s}} [I_{\nu-\frac{1}{2}}(\frac{a}{s}) - I_{\nu+\frac{1}{2}}(\frac{a}{s})]$	$\left(\frac{2}{a\pi}\right)^{\frac{1}{2}} I_{2\nu}[(8at)^{\frac{1}{2}}]$		Re $\nu > -1$ Re $s > 0$

		g(s)	f(t)		
12.3.2 (Contd.)	26	$\frac{1}{s^{\frac{3}{2}}} e^{-\frac{a}{s}}[I_{\nu-\frac{1}{2}}(\frac{a}{s})-I_{\nu+\frac{1}{2}}(\frac{a}{s})]$	$\left(\frac{2}{a\pi}\right)^{\frac{1}{2}} J_{2\nu}[(8at)^{\frac{1}{2}}]$		Re $\nu > -1$ Re $s > 0$
12.4	1	$\frac{1}{s} I_0(\log s)$	$\frac{1}{\pi}\int_0^2 \frac{t^{u-1}du}{\Gamma(u)u^{\frac{1}{2}}(2-u)^{\frac{1}{2}}}$		Re $s > -\infty$
12.7	1	$\frac{I_1(as)\operatorname{cosech}(as)}{s}$	$\frac{2}{a\pi}[2a(t-2an)-(t-2an)^2]^{\frac{1}{2}}$	$2an < t < 2a(n+1)$	Re $s > 0$ $n = 0,1,2,\ldots$
	2	$\frac{1}{s}\sinh\left(\frac{a^2+b^2}{s}\right) I_\nu\left(\frac{2ab}{s}\right)$	$\frac{1}{2}[I_\nu(2at^{\frac{1}{2}})I_\nu(2bt^{\frac{1}{2}})-J_\nu(2at^{\frac{1}{2}})J_\nu(2bt^{\frac{1}{2}})]$		Re $\nu > -1$ Re $s > 0$
	3	$\frac{1}{s}\cosh\left(\frac{a^2+b^2}{s}\right) I_\nu\left(\frac{2ab}{s}\right)$	$\frac{1}{2}[I_\nu(2at^{\frac{1}{2}})I_\nu(2bt^{\frac{1}{2}})+J_\nu(2at^{\frac{1}{2}})J_\nu(2bt^{\frac{1}{2}})]$		Re $\nu > -1$ Re $s > 0$
12.7.2	1	$\frac{\sinh\frac{1}{s} I_{\frac{1}{4}}(\frac{1}{s})}{s^{\frac{1}{2}}}$	$\frac{\sinh[(8t)^{\frac{1}{2}}]-\sin[(8t)^{\frac{1}{2}}]}{2^{\frac{5}{4}}\pi t^{\frac{3}{4}}}$		Re $s > 0$
	2	$\frac{\cosh\frac{1}{s} I_{\frac{1}{4}}(\frac{1}{s})}{s^{\frac{1}{2}}}$	$\frac{\sinh[(8t)^{\frac{1}{2}}]+\sin[(8t)^{\frac{1}{2}}]}{2^{\frac{5}{4}}\pi t^{\frac{3}{4}}}$		Re $s > 0$
	3	$\frac{\sinh\frac{1}{s} I_{-\frac{1}{4}}(\frac{1}{s})}{s^{\frac{1}{2}}}$	$\frac{\cosh[(8t)^{\frac{1}{2}}]-\cos[(8t)^{\frac{1}{2}}]}{2^{\frac{5}{4}}\pi t^{\frac{3}{4}}}$		Re $s > 0$
	4	$\frac{\cosh\frac{1}{s} I_{-\frac{1}{4}}(\frac{1}{s})}{s^{\frac{1}{2}}}$	$\frac{\cosh[(8t)^{\frac{1}{2}}]+\cos[(8t)^{\frac{1}{2}}]}{2^{\frac{5}{4}}\pi t^{\frac{3}{4}}}$		Re $s > 0$
	5	$\frac{1}{s^{\frac{1}{2}}}\sinh\frac{a}{s} I_\nu(\frac{a}{s})$	$\frac{I_{2\nu}[(8at)^{\frac{1}{2}}]-J_{2\nu}[(8at)^{\frac{1}{2}}]}{2(\pi t)^{\frac{1}{2}}}$		Re $\nu > -\frac{1}{2}$ Re $s > 0$

		g(s)	f(t)		
12.7.2 (Contd.)	6	$\frac{1}{s^{\frac{1}{2}}}\cosh\frac{a}{s} I_\nu(\frac{a}{s})$	$\frac{I_{2\nu}[(8at)^{\frac{1}{2}}]+J_{2\nu}[(8at)^{\frac{1}{2}}]}{2(\pi t)^{\frac{1}{2}}}$		Re $\nu > -\frac{1}{2}$ Re $s > 0$
	7	$\frac{1}{s^\nu}\operatorname{cosech}(as) I_\nu(as)$	$\frac{2^\nu\Gamma(\nu)}{\pi a^\nu\Gamma(2\nu)}[2a(t-2na)-(t-2na)^2]^{\nu-\frac{1}{2}}$	$2na < t < 2(n+1)a$	$a > 0$ Re $\nu > -\frac{1}{2}$ Re $s > 0$ $n = 0,1,2,\ldots$
12.9.3.2	1	$\frac{e^{-s}}{(s^2+a^2)^{\frac{\nu}{2}}} C_n^\nu\left[\frac{s}{(s^2+a^2)^{\frac{1}{2}}}\right]\cdot I_{\nu+n}[(s^2+a^2)^{\frac{1}{2}}]$	$\frac{(-1)^n}{(2\pi)^{\frac{1}{2}}a^{\nu-\frac{1}{2}}}(2t-t^2)^{\frac{\nu}{2}-\frac{1}{4}}C_n^\nu(t-1)I_{\nu-\frac{1}{2}}[a(2t-t^2)^{\frac{1}{2}}]$	$0 < t < 2$	$n = 0,1,2,\ldots$ Re $\nu > -\frac{1}{2}$
			0	$t > 2$	Re $s > -\infty$
13	1	$K_0(as)$	0	$0 < t < a$	$a > 0$ Re $s > 0$
			$\frac{1}{(t^2-a^2)^{\frac{1}{2}}}$	$t > a$	
	2	$\frac{1}{s}K_0(as)$	0	$0 < t < a$	$a > 0$ Re $s > 0$
			$\cosh^{-1}\frac{t}{a}$	$t > a$	
	3	$K_1(as)$	0	$0 < t < a$	$a > 0$ Re $s > 0$
			$\frac{t}{a(t^2-a^2)^{\frac{1}{2}}}$	$t > a$	
	4	$K_n(as)$	0	$0 < t < a$	$n = 0,1,2,\ldots$ Re $s > 0$
			$\frac{T_n(\frac{t}{a})}{(t^2-a^2)^{\frac{1}{2}}}$	$t > a$	

		$g(s)$	$f(t)$	
13 (Contd.)	5	$\frac{1}{s}K_n(as)$	$0 \qquad 0<t<a$ $\frac{(t^2-a^2)^{\frac{1}{2}}}{an}U_n\left(\frac{t}{a}\right) \qquad t>a$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	6	$K_\nu(as)$	$0 \qquad 0<t<a$ $\frac{\cosh\left(\nu\cosh^{-1}\frac{t}{a}\right)}{(t^2-a^2)^{\frac{1}{2}}}$ $=\frac{a^{-\nu}\left[(t^2-a^2)^{\frac{1}{2}}+t\right]^\nu+\left[(t^2-a^2)^{\frac{1}{2}}+t\right]^{-\nu}a^\nu}{2(t^2-a^2)^{\frac{1}{2}}} \qquad t>a$	$a>0$ $\mathrm{Re}\, s>0$
	7	$\frac{1}{s}K_\nu(as)$	$0 \qquad 0<t<a$ $\frac{\left[(t+a)^{\frac{1}{2}}+(t-a)^{\frac{1}{2}}\right]^{2\nu}-\left[(t+a)^{\frac{1}{2}}-(t-a)^{\frac{1}{2}}\right]^{2\nu}}{2^{\nu+1}\,\nu a^\nu}$ $=\nu^{-1}\sinh\left[\nu\cosh^{-1}\frac{t}{a}\right] \qquad t>a$	$a>0$ $\mathrm{Re}\, s>0$
	8	$\frac{1}{s}\int_s^\infty K_0(au)\,du$	$0 \qquad 0<t<a$ $\frac{1}{a}\cos^{-1}\frac{a}{t} \qquad t>a$	$\mathrm{Re}\, s>0$
13.2	1	$K_0(as^{\frac{1}{2}})$	$\frac{e^{-\frac{a^2}{4t}}}{2t}$	$\mathrm{Re}\, a^2>0$ $a\neq 0$ $\mathrm{Re}\, s>0$
	2	$s^{\frac{1}{2}}K_1(as^{\frac{1}{2}})$	$a\frac{e^{-\frac{a^2}{4t}}}{4t^2}$	$\mathrm{Re}\, a^2>0$ $\mathrm{Re}\, s>0$
	3	$\frac{K_{\frac{1}{2}}\left[b(s^2+a^2)^{\frac{1}{2}}\right]}{(s^2+a^2)^{\frac{1}{4}}}$	$0 \qquad 0<t<b$ $\left(\frac{\pi}{2t}\right)^{\frac{1}{2}}J_0\left[a(t^2-b^2)^{\frac{1}{2}}\right] \qquad t>b$	$b>0$ $\mathrm{Re}\, s>0$

		$g(s)$	$f(t)$	
13.2 (Contd.)	4	$\frac{1}{s^{\frac{1}{2}}}K_1(as^{\frac{1}{2}})$	$\frac{e^{-\frac{a^2 t}{4}}}{a}$	$\mathrm{Re}\, a^2>0$ $\mathrm{Re}\, s>0$
	5	$\frac{K_1\left[b(s^2+a^2)^{\frac{1}{2}}\right]}{(s^2+a^2)^{\frac{1}{2}}}$	$0 \qquad 0<t<b$ $\frac{\sin\left[a(t^2-b^2)^{\frac{1}{2}}\right]}{ab} \qquad t>b$	$b>0$ $\mathrm{Re}\, s>\lvert\mathrm{Im}\, a\rvert$
	6	$\frac{K_\nu(as)}{s^\nu}$	$0 \qquad 0<t<a$ $\frac{\pi^{\frac{1}{2}}(t^2-a^2)^{\nu-\frac{1}{2}}}{(2a)^\nu\Gamma(\nu+\frac{1}{2})} \qquad t>a$	$\mathrm{Re}\,\nu>-\frac{1}{2}$ $\mathrm{Re}\, s>0$
	7	$\frac{K_\nu(as)}{s^\mu}$	$0 \qquad 0<t<a$ $\left(\frac{\pi}{2a}\right)^{\frac{1}{2}}(t^2-a^2)^{\frac{\mu}{2}-\frac{1}{4}}P^{-\mu+\frac{1}{2}}_{\nu-\frac{1}{2}}\left(\frac{t}{a}\right) \qquad t>a$	$a>0$ $\mathrm{Re}\,\mu>-\frac{1}{2}$ $\mathrm{Re}\, s>0$
	8	$s^\mu K_\nu\left(\frac{a}{s}\right)$	$\frac{2^\mu\pi^{\frac{1}{2}}}{t^{\mu+1}}S_2\left(\frac{\nu-1}{2},\frac{-\nu-1}{2},\frac{\mu+1}{2},\frac{\mu}{2};\frac{at}{4}\right)$	$\mathrm{Re}(\mu\pm\nu)<0$ $\mathrm{Re}\, s>0$
	9	$\frac{1}{s^{\frac{1}{2}}}K_\nu(as^{\frac{1}{2}})$	$\frac{e^{-\frac{a^2}{8t}}K_{\frac{\nu}{2}}\left(\frac{a^2}{8t}\right)}{2\pi^{\frac{1}{2}}t^{\frac{1}{2}}}$	$\mathrm{Re}\, a^2>0$ $\mathrm{Re}\, s>0$
	10	$s^\mu K_\nu(as^{\frac{1}{2}})$	$\frac{e^{-\frac{a^2}{8t}}W_{\mu+\frac{1}{2},\frac{\nu}{2}}\left(\frac{a^2}{4t}\right)}{a\,t^{\mu+\frac{1}{2}}}$	$\mathrm{Re}\, a^2>0$ $\mathrm{Re}\, s>0$
	11	$s^{\frac{\nu}{2}+n}K_\nu(as^{\frac{1}{2}})$	$\frac{(-1)^n n!\,a^\nu}{2^{\nu+1}t^n}e^{-\frac{a^2}{4t}}L_n^\nu\left(\frac{a^2}{4t}\right)$	$\mathrm{Re}\, a^2>0$ $\mathrm{Re}\, s>0$

		g(s)	f(t)		
13.2 (Contd.)	12	$s^{\frac{\nu}{2}} K_\nu(as^{\frac{1}{2}})$	$\dfrac{a^\nu e^{-\frac{a^2}{4t}}}{(2t)^{\nu+1}}$		Re $a^2 > 0$ Re $s > 0$
	13	$\dfrac{1}{s^{\frac{\nu}{2}}} K_\nu(as^{\frac{1}{2}})$	$\dfrac{(2t)^{\nu-1} e^{-\frac{a^2}{4t}}}{a^\nu}$		Re $a^2 > 0$ Re $s > 0$
	14	$s^{\frac{\nu}{2}-1} K_\nu(as^{\frac{1}{2}})$	$\dfrac{2^{\nu-1}\Gamma(\nu, \frac{a^2}{4t})}{a^\nu}$		Re $a^2 > 0$ Re $s > 0$
	15	$\dfrac{K_\nu[b(s^2+a^2)^{\frac{1}{2}}]}{(s^2+a^2)^{\frac{\nu}{2}}}$	0 $\left(\frac{\pi}{2}\right)^{\frac{1}{2}} \dfrac{(t^2-b^2)^{\frac{\nu}{2}-\frac{1}{4}} J_{\nu-\frac{1}{2}}[a(t^2-b^2)^{\frac{1}{2}}]}{a^{\nu-\frac{1}{2}} b^\nu}$	$0 < t < b$ $t > b$	Re $\nu > -\frac{1}{2}$ Re $s > \lvert \text{Im } a \rvert$ $b > 0$
	16	$\dfrac{K_\nu[b(s^2-a^2)^{\frac{1}{2}}]}{(s^2-a^2)^{\frac{\nu}{2}}}$	0 $\left(\frac{\pi}{2}\right)^{\frac{1}{2}} \dfrac{(t^2-b^2)^{\frac{\nu}{2}-\frac{1}{4}}}{a^{\nu-\frac{1}{2}} b^\nu} I_{\nu-\frac{1}{2}}[a(t^2-b^2)^{\frac{1}{2}}]$	$0 < t < b$ $t > b$	$b > 0$ Re $\nu > -\frac{1}{2}$ Re $s > \lvert \text{Re } a \rvert$
	17	$s^\nu [K_\nu(as^{\frac{1}{2}})]^2$	$\dfrac{\pi^{\frac{1}{2}} a^{\nu-1}}{2t^{\frac{3\nu+1}{2}}} e^{-\frac{a^2}{2t}} W_{\frac{\nu}{2},\frac{\nu}{2}}\left(\frac{a^2}{t}\right)$		Re $a^2 > 0$ Re $s > 0$
	18	$s^{\frac{1}{2}} K_{\nu+\frac{1}{4}}(as) K_{\nu-\frac{1}{4}}(as)$	0 $\dfrac{(2\pi)^{\frac{1}{2}} \cosh(2\nu \cosh^{-1} \frac{t}{2a})}{t^{\frac{1}{2}}(t^2-4a^2)^{\frac{1}{2}}}$ $= \left(\frac{\pi}{2}\right)^{\frac{1}{2}} \dfrac{[t+(t^2-4a^2)^{\frac{1}{2}}]^{2\nu} + [t-(t^2-4a^2)^{\frac{1}{2}}]^{2\nu}}{(2a)^{2\nu} t^{\frac{1}{2}} (t^2-4a^2)^{\frac{1}{2}}}$	$0 < t < 2a$ $t > 2a$	$a > 0$ Re $s > 0$

		g(s)	f(t)	
13.2 (Contd.)	19	$s^{\frac{1}{2}} K_{\nu+\frac{1}{2}}(as^{\frac{1}{2}}) K_{\nu-\frac{1}{2}}(as^{\frac{1}{2}})$	$\dfrac{\pi^{\frac{1}{2}}}{2^{\frac{3}{2}} a t} e^{-\frac{a^2 t}{2}} W_{\frac{1}{2},\nu}\left(\frac{a^2}{t}\right)$	Re $a^2 > 0$ Re $s > 0$
	20	$K_\nu(as^{\frac{1}{2}}) K_\nu(bs^{\frac{1}{2}})$	$\dfrac{e^{-\frac{a^2+b^2}{4t}}}{2t} K_\nu\left(\frac{ab}{2t}\right)$	Re$(a+b)^2 >$ Re$(a-b)^2 > 0$ Re $s > 0$
	21	$K_\nu[s^{\frac{1}{2}}+(s-1)^{\frac{1}{2}}] K_\nu[s^{\frac{1}{2}}-(s-1)^{\frac{1}{2}}]$	$\dfrac{e^{\frac{t}{2}-\frac{1}{t}} K_\nu(\frac{t}{2})}{2t}$	Re $s > 1$
	22	$K_\nu[\lvert as+a(s^2-b^2)^{\frac{1}{2}}\rvert^{\frac{1}{2}}] K_\nu\left[\dfrac{ab}{\lvert as+a(s^2-b^2)^{\frac{1}{2}}\rvert^{\frac{1}{2}}}\right]$	$\dfrac{e^{-\frac{a}{2t}}}{2t} K_\nu(ab^2 t)$	Re $a > 0$ Re $s > -$ Re ab^2
13.3	1	$e^{as} K_0(as)$	$\dfrac{1}{(t^2+2at)^{\frac{1}{2}}}$	$\lvert \arg a \rvert < \pi$ Re $s > 0$
	2	$\frac{1}{s} e^{as} K_0(as)$	$2 \log \dfrac{t^{\frac{1}{2}}+(t+2a)^{\frac{1}{2}}}{(2a)^{\frac{1}{2}}}$ $= \cosh^{-1}\left(1+\frac{t}{a}\right)$	$\lvert \arg a \rvert < \pi$ Re $s > 0$
	3	$e^{as} K_1(as)$	$\dfrac{t+a}{a(t^2+2at)^{\frac{1}{2}}}$	$\lvert \arg a \rvert < \pi$ Re $s > 0$
	4	$\frac{1}{s} e^{as} K_1(as)$	$\dfrac{(t^2+2at)^{\frac{1}{2}}}{a}$	$\lvert \arg a \rvert < \pi$ Re $s > 0$
	5	$e^{as} K_\nu(as)$	$\dfrac{\cosh[\nu \cosh^{-1}(1+\frac{t}{a})]}{(t^2+2at)^{\frac{1}{2}}}$	$\lvert \arg a \rvert < \pi$ Re $s > 0$

		$g(s)$	$f(t)$	
13.3 (Contd.)	6	$\frac{1}{s}e^{as}K_\nu(as)$	$\frac{[(t+2a)^{\frac12}+t^{\frac12}]^{2\nu}-[(t+2a)^{\frac12}-t^{\frac12}]^{2\nu}}{2^{\nu+1}\nu a^\nu}$ $=\nu^{-1}\sinh[\nu\cosh^{-1}(1+\frac{t}{a})]$	$\lvert\arg a\rvert<\pi$ $\operatorname{Re} s>0$
	7	$e^{(a+b)s}K_\nu(as)K_\nu(bs)$	$\frac{\pi(4ab)^\nu}{[(2a+t)(2b+t)]^{\nu+\frac12}}\,{}_2F_1\left[\frac12+\nu,\frac12+\nu;1;\frac{t(2a+2b+t)}{(2a+t)(2b+t)}\right]$ $=\frac{[(2a+t)(2b+t)]^{\frac{\nu}{2}-\frac14}}{\pi(4ab)^{\frac{\nu}{2}+\frac14}}P_{\nu-\frac12}\left[\frac{(2a+t)(2b+t)}{2ab}-1\right]$	$\lvert\arg a\rvert<\pi$ $\lvert\arg b\rvert<\pi$ $\lvert\arg as\rvert<\pi$ $\lvert\arg bs\rvert<\pi$ $\operatorname{Re} s>0$
	8	$e^{2s\cos^2\frac{\theta}{2}}\left[\theta-\sin\theta\int_0^s K_0(u)e^{-u\cos\theta}\,du\right]$	$\frac{\sin\theta}{(1+t+\cos\theta)(t^2+2t)^{\frac12}}$	$\operatorname{Re} s>0$
13.3.1	1	$e^{as^2}K_0(as^2)$	$\left(\frac{\pi}{2a}\right)^{\frac12}e^{-\frac{t^2}{16a}}I_0\left(\frac{t^2}{16a}\right)$	$\operatorname{Re} a>0$ $\operatorname{Re} s>0$
13.3.2	1	$\frac{1}{s^{\frac12}}e^{\frac{a}{s}}K_0(\frac{a}{s})$	$\frac{2}{(\pi t)^{\frac12}}K_0[(8at)^{\frac12}]$	$\operatorname{Re} s>0$
	2	$\frac{1}{s^{\frac12}}e^{-\frac{a}{s}}K_0(\frac{a}{s})$	$-\left(\frac{\pi}{t}\right)^{\frac12}Y_0[(8at)^{\frac12}]$	$\operatorname{Re} s>0$
	3	$\frac{1}{s^{\frac12}}e^{\frac{a}{s}}K_{\frac14}(\frac{a}{s})$	$\frac{e^{-(8at)^{\frac12}}}{a^{\frac12}(2t)^{\frac34}}$	$\operatorname{Re} s>0$
	4	$\frac{e^{bs}K_{\frac12}[b(s^2+a^2)^{\frac12}]}{(s^2+a^2)^{\frac14}}$	$\left(\frac{\pi}{2b}\right)^{\frac12}J_0[a(t^2+2bt)^{\frac12}]$	$\operatorname{Re} s>\lvert\operatorname{Im} a\rvert$

		$g(s)$	$f(t)$	
13.3.2 (Contd.)	5	$\frac{1}{s^{\frac32}}e^{\frac{a}{s}}[K_1(\frac{a}{s})-K_0(\frac{a}{s})]$	$\left(\frac{8}{a\pi}\right)^{\frac12}K_1[(8at)^{\frac12}]$	$\operatorname{Re} s>0$
	6	$\frac{e^{as}}{s^{\frac12}}K_{n+\frac12}(as)$	$\left(\frac{\pi}{2a}\right)^{\frac12}P_n(1+\frac{t}{a})$	$n=0,1,2,\ldots$ $\operatorname{Re} s>0$
	7	$\frac{1}{s^{\frac12}}e^{\frac{a}{s}}K_\nu(\frac{a}{s})$	$\frac{2\cos(\nu\pi)}{(\pi t)^{\frac12}}K_{2\nu}[(8at)^{\frac12}]$	$\lvert\operatorname{Re}\nu\rvert<\frac12$ $\operatorname{Re} s>0$
	8	$\frac{1}{s^{\frac12}}e^{-\frac{a}{s}}K_\nu(\frac{a}{s})$	$-\left(\frac{\pi}{t}\right)^{\frac12}\left\{\sin(\nu\pi)J_{2\nu}[(8at)^{\frac12}]+\cos(\nu\pi)Y_{2\nu}[(8at)^{\frac12}]\right\}$	$\lvert\operatorname{Re}\nu\rvert<\frac12$ $\operatorname{Re} s>0$
	9	$s^\mu e^{as}K_\nu(as)$	$\frac{\pi^{\frac12}P^{\mu+\frac12}_{\nu-\frac12}(1+\frac{t}{a})}{(2a)^{\frac12}(t^2+2at)^{\frac{\mu}{2}+\frac14}}$	$\operatorname{Re}\mu<\frac12$ $\lvert\arg a\rvert<\pi$ $\operatorname{Re} s>0$
	10	$\frac{1}{s^\nu}e^{as}K_\nu(as)$	$\frac{\pi^{\frac12}(t^2+2at)^{\nu-\frac12}}{(2a)^\nu\Gamma(\nu+\frac12)}$	$\operatorname{Re}\nu>-\frac12$ $\lvert\arg a\rvert<\pi$ $\operatorname{Re} s>0$
	11	$\frac{e^{bs}K_\nu[b(s^2+a^2)^{\frac12}]}{(s^2+a^2)^{\frac{\nu}{2}}}$	$\left(\frac{\pi}{2}\right)^{\frac12}\frac{(t^2+2bt)^{\frac{\nu}{2}-\frac14}}{a^{\nu-\frac12}b^\nu}J_{\nu-\frac12}[a(t^2+2bt)^{\frac12}]$	$\operatorname{Re}\nu>-\frac12$ $\lvert\arg b\rvert<\pi$ $\operatorname{Re} s>\lvert\operatorname{Im} a\rvert$
	12	$\frac{e^{bs}K_\nu[b(s^2-a^2)^{\frac12}]}{(s^2-a^2)^{\frac{\nu}{2}}}$	$\left(\frac{\pi}{2}\right)^{\frac12}\frac{(t^2+2bt)^{\frac{\nu}{2}-\frac14}}{a^{\nu-\frac12}b^\nu}I_{\nu-\frac12}[a(t^2+2bt)^{\frac12}]$	$\operatorname{Re}\nu>-\frac12$ $\lvert\arg b\rvert<\pi$ $\operatorname{Re} s>\lvert\operatorname{Re} a\rvert$

		$g(s)$	$f(t)$	
13.3.2 (Contd.)	13	$s^{\frac{1}{2}} e^{2as} K_{\nu+\frac{1}{4}}(as) K_{\nu-\frac{1}{4}}(as)$	$\dfrac{(2\pi)^{\frac{1}{2}} \cosh[2\nu \cosh^{-1}(1+\frac{t}{2a})]}{[t(t+2a)(t+4a)]^{\frac{1}{2}}}$	$\lvert \arg a \rvert < \pi$, $\mathrm{Re}\, s > 0$
	14	$\dfrac{2^{\frac{n+1}{2}} \pi^{\frac{n}{2}}}{s} e^{-\frac{1}{2} a^{\frac{1}{n}} s^{\frac{1}{n}}} K_{n\nu}\left(\frac{1}{2} a^{\frac{1}{n}} s^{\frac{1}{n}}\right)$	$\sum_{i,-i} \frac{1}{i} E\left[\Delta(n;n\nu), \Delta(n;-n\nu) : \Delta(n;\frac{1}{2}) : \frac{a e^{i\pi}}{n^n t}\right]$ $\sum_{i,-i}$ denotes that in the expression following the E sign i is to be replaced by $-i$ and the two expressions are to be added.	$n = 2,3,4,\ldots$, $\mathrm{Re}\, a > 0$, $\mathrm{Re}\, s > 0$
13.3.2.1	1	$s^{\frac{1}{2}} e^{as^2} K_{\frac{1}{4}}(as^2)$	$\dfrac{e^{-\frac{t^2}{8a}}}{(2at)^{\frac{1}{2}}}$	$\mathrm{Re}\, a > 0$, $\mathrm{Re}\, s > 0$
	2	$\dfrac{1}{s^{\frac{1}{2}}} e^{as^2} K_{\frac{1}{4}}(as^2)$	$(8a)^{-\frac{1}{4}} \gamma\left(\frac{1}{4}, \frac{t^2}{8a}\right)$	$\mathrm{Re}\, a > 0$, $\mathrm{Re}\, s > 0$
	3	$\dfrac{1}{s^{2\nu}} e^{as^2} K_{\nu}(as^2)$	$\dfrac{2\pi^{\frac{1}{2}} (8a)^{\frac{\nu}{2}}}{\Gamma(2\nu+1)} t^{\nu-1} e^{-\frac{t^2}{16a}} W_{-\frac{3\nu}{2},\frac{\nu}{2}}\left(\frac{t^2}{8a}\right)$	$\mathrm{Re}\, a > 0$, $\mathrm{Re}\, \nu > -\frac{1}{2}$, $\mathrm{Re}\, s > 0$
13.7.2	1	$\dfrac{1}{s^{\frac{1}{2}}} \sinh \frac{a}{s} K_0(\frac{a}{s})$	$\dfrac{K_0[(8at)^{\frac{1}{2}}]}{(\pi t)^{\frac{1}{2}}} + \dfrac{\pi^{\frac{1}{2}} Y_0[(8at)^{\frac{1}{2}}]}{2t^{\frac{1}{2}}}$	$\mathrm{Re}\, s > 0$
	2	$\dfrac{1}{s^{\frac{1}{2}}} \cosh \frac{a}{s} K_0(\frac{a}{s})$	$\dfrac{K_0[(8at)^{\frac{1}{2}}]}{(\pi t)^{\frac{1}{2}}} - \dfrac{\pi^{\frac{1}{2}} Y_0[(8at)^{\frac{1}{2}}]}{2t^{\frac{1}{2}}}$	$\mathrm{Re}\, s > 0$
13.10.2	1	$J_{\nu}(as^{\frac{1}{2}}) K_{\nu}(as^{\frac{1}{2}})$	$\dfrac{J_{\nu}(\frac{a^2}{2t})}{2t}$	$a^2 > 0$, $\mathrm{Re}\, s > 0$

		$g(s)$	$f(t)$		
13.10.2 (Contd.)	2	$Y_{\nu}(as^{\frac{1}{2}}) K_{\nu}(as^{\frac{1}{2}})$	$\dfrac{Y_{\nu}(\frac{a^2}{2t})}{2t}$		$a^2 > 0$, $\mathrm{Re}\, s > 0$
13.11.2	1	$H_{\nu}^{(1)}(as^{\frac{1}{2}}) K_{\nu}(as^{\frac{1}{2}})$	$\dfrac{H_{\nu}^{(1)}(\frac{a^2}{2t})}{2t}$		$a^2 > 0$, $\mathrm{Re}\, s > 0$
	2	$H_{\nu}^{(2)}(as^{\frac{1}{2}}) K_{\nu}(as^{\frac{1}{2}})$	$\dfrac{H_{\nu}^{(2)}(\frac{a^2}{2t})}{2t}$		$a^2 > 0$, $\mathrm{Re}\, s > 0$
13.12	1	$K_s(a) I_s(a)$	$\frac{1}{2} J_0(2a \sinh \frac{t}{2})$		$\mathrm{Re}\, a > 0$, $\mathrm{Re}\, s > -\frac{1}{2}$
13.12.1	1	$I_{\nu+s}(a) K_{\nu-s}(a)$	$\frac{1}{2} J_{2\nu}(2a \sinh \frac{t}{2})$		$\mathrm{Re}\, \nu > -\frac{1}{2}$, $\mathrm{Re}\, a > 0$, $\mathrm{Re}\, s > -\frac{1}{2}$
13.12.2	1	$K_0(as^{\frac{1}{2}}) I_0(as^{\frac{1}{2}})$	$\dfrac{e^{-\frac{a^2}{2t}} I_0(\frac{a^2}{2t})}{2t}$		$\mathrm{Re}\, s > 0$
	2	$s^{\frac{1}{2}} I_n(as) K_{n+\frac{1}{2}}(as)$	$(-1)^n \left(\frac{2}{\pi}\right)^{\frac{1}{2}} \dfrac{\cos[(2n+\frac{1}{2}) \cos^{-1}(\frac{t}{2a})]}{t^{\frac{1}{2}}(4a^2-t^2)^{\frac{1}{2}}}$	$0 < t < 2a$	$n = 0,1,2,\ldots$, $\mathrm{Re}\, s > -\infty$
			0	$t > 2a$	
	3	$K_{\nu}(as^{\frac{1}{2}}) I_{\nu}(bs^{\frac{1}{2}})$	$\dfrac{e^{-\frac{a^2+b^2}{4t}}}{2t} I_{\nu}\left(\frac{ab}{2t}\right)$		$\mathrm{Re}(a+b)^2 > \mathrm{Re}(a-b)^2 > 0$, $\mathrm{Re}\, s > 0$
	4	$I_{\nu}\{b[(s^2+a^2)^{\frac{1}{2}}-s]\} K_{\nu}\{b[(s^2+a^2)^{\frac{1}{2}}+s]\}$	0	$0 < t < 2b$	$b > 0$, $\mathrm{Re}\, \nu > -\frac{1}{2}$, $\mathrm{Re}\, s > \lvert \mathrm{Im}\, a \rvert$
			$\dfrac{J_{2\nu}[a(t^2-4b^2)^{\frac{1}{2}}]}{(t^2-4b^2)^{\frac{1}{2}}}$	$t > 2b$	

		$g(s)$	$f(t)$	
13.12.3.2	1	$s^{-\frac{1}{2}} e^{-\frac{a}{s}}[\tan(\nu\pi)\, I_{\nu}(\frac{a}{s}) + \frac{\sec(\nu\pi)}{\pi} K_{\nu}(\frac{a}{s})]$	$-\frac{Y_{2\nu}[(8at)^{\frac{1}{2}}]}{(\pi t)^{\frac{1}{2}}}$	$\lvert \mathrm{Re}\,\nu \rvert < \frac{1}{2}$, $\mathrm{Re}\, s > 0$
	2	$\frac{1}{s^{\frac{1}{2}}} e^{-\frac{a}{s}}[e^{i\nu\pi} I_{\nu}(\frac{a}{s}) + \frac{i}{\pi} K_{\nu}(\frac{a}{s})]$	$\frac{\cos(\nu\pi)}{(\pi t)^{\frac{1}{2}}} H^{(2)}_{2\nu}[(8at)^{\frac{1}{2}}]$	$\lvert \mathrm{Re}\,\nu \rvert < \frac{1}{2}$, $\mathrm{Re}\, s > 0$
	3	$\frac{1}{s^{\frac{1}{2}}} e^{-\frac{a}{s}}[e^{-i\nu\pi} I_{\nu}(\frac{a}{s}) - \frac{i}{\pi} K_{\nu}(\frac{a}{s})]$	$\frac{\cos(\nu\pi)}{(\pi t)^{\frac{1}{2}}} H^{(1)}_{2\nu}[(8at)^{\frac{1}{2}}]$	$\lvert \mathrm{Re}\,\nu \rvert < \frac{1}{2}$, $\mathrm{Re}\, s > 0$
14	1	$\frac{1}{s} K(\frac{a}{s})$	$\frac{\pi}{2} I_0^2(\frac{at}{2})$	$\mathrm{Re}\, s > \lvert \mathrm{Re}\, a \rvert$
	2	$K(\frac{a}{s}) - \frac{\pi}{2}$	$\frac{\pi a}{2} I_0(\frac{at}{2})\, I_1(\frac{at}{2})$	$\mathrm{Re}\, s > \lvert \mathrm{Re}\, a \rvert$
	3	$s[K(\frac{a}{s}) - \frac{\pi}{2}]$	$\frac{\pi a^2}{8}\left\{[I_0(\frac{at}{2})]^2 + 2[I_1(\frac{at}{2})]^2 + I_0(\frac{at}{2})\, I_2(\frac{at}{2})\right\}$	$\mathrm{Re}\, s > \lvert \mathrm{Re}\, a \rvert$
	4	$s[\frac{\pi}{2} - E(\frac{a}{s})]$	$\frac{\pi a}{2t} I_0(\frac{at}{2})\, I_1(\frac{at}{2})$	$\mathrm{Re}\, s > \lvert \mathrm{Re}\, a \rvert$
	5	$s[K(\frac{a}{s}) - E(\frac{a}{s})]$	$\frac{\pi a^2}{4}[I_0^2(\frac{at}{2}) + I_1^2(\frac{at}{2})]$	$\mathrm{Re}\, s > \lvert \mathrm{Re}\, a \rvert$
14.1	1	$\frac{s}{s^2-a^2} E(\frac{a}{s})$	$\frac{\pi}{2} I_0(\frac{at}{2})[I_0(\frac{at}{2}) + at\, I_1(\frac{at}{2})]$	$\mathrm{Re}\, s > \lvert \mathrm{Re}\, a \rvert$
	2	$\frac{s^2}{s^2-a^2} E(\frac{a}{s}) - K(\frac{a}{s})$	$\frac{\pi a^2 t}{4}[I_0^2(\frac{at}{2}) + I_1^2(\frac{at}{2})]$	$\mathrm{Re}\, s > \lvert \mathrm{Re}\, a \rvert$

		$g(s)$	$f(t)$	
14.1 (Contd.)	3	$\frac{a}{s^2-a^2} E(\frac{a}{s}) - \frac{1}{s} K(\frac{a}{s})$	$\frac{\pi a}{2} t\, I_0(\frac{at}{2})\, I_1(\frac{at}{2})$	$\mathrm{Re}\, s > \lvert \mathrm{Re}\, a \rvert$
	4	$\frac{2s^2-a^2}{s} K(\frac{a}{s}) - 2s\, E(\frac{a}{s})$	$\frac{\pi a^2}{2} I_1^2(\frac{at}{2})$	$\mathrm{Re}\, s > \lvert \mathrm{Re}\, a \rvert$
14.2	1	$\frac{B\left[\frac{a}{(s^2+a^2)^{\frac{1}{2}}}\right]}{(s^2+a^2)^{\frac{1}{2}}}$	$\frac{\pi}{4}[J_0^2(\frac{at}{2}) - J_1^2(\frac{at}{2})]$	$\mathrm{Re}\, s > \lvert \mathrm{Im}\, a \rvert$
	2	$\frac{G\left[\frac{a}{(s^2+a^2)^{\frac{1}{2}}}\right]}{(s^2+a^2)^{\frac{3}{2}}}$	$\frac{\pi}{2a^2} J_1^2(\frac{at}{2})$	$\mathrm{Re}\, s > \lvert \mathrm{Im}\, a \rvert$
	3	$\frac{D\left[\frac{a}{(s^2+a^2)^{\frac{1}{2}}}\right]}{(s^2+a^2)^{\frac{1}{2}}}$	$\frac{\pi}{4}[J_0^2(\frac{at}{2}) + J_1^2(\frac{at}{2})]$	$\mathrm{Re}\, s > \lvert \mathrm{Im}\, a \rvert$
	4	$\frac{E\left[\frac{a}{(s^2+a^2)^{\frac{1}{2}}}\right]}{(s^2+a^2)^{\frac{1}{2}}}$	$\frac{\pi}{2} J_0(\frac{at}{2})[J_0(\frac{at}{2}) - at\, J_1(\frac{at}{2})]$	$\mathrm{Re}\, s > \lvert \mathrm{Im}\, a \rvert$
	5	$\frac{K\left[\frac{a}{(s^2+a^2)^{\frac{1}{2}}}\right]}{(s^2+a^2)^{\frac{1}{2}}}$	$\frac{\pi}{2} J_0^2(\frac{at}{2})$	$\mathrm{Re}\, s > \lvert \mathrm{Im}\, a \rvert$
	6	$\frac{K\left[\frac{a}{(s^2+a^2)^{\frac{1}{2}}}\right] - E\left[\frac{a}{(s^2+a^2)^{\frac{1}{2}}}\right]}{(s^2+a^2)^{\frac{1}{2}}}$	$\frac{\pi a}{2} t\, J_0(\frac{at}{2})\, J_1(\frac{at}{2})$	$\mathrm{Re}\, s > \lvert \mathrm{Im}\, a \rvert$
14.2.1	1	$\frac{2s^2+a^2}{(s^2+a^2)^{\frac{1}{2}}} K\left[\frac{a}{(s^2+a^2)^{\frac{1}{2}}}\right] - 2(s^2+a^2) E\left[\frac{a}{(s^2+a^2)^{\frac{1}{2}}}\right]$	$\frac{\pi a^2}{2} J_1^2(\frac{at}{2})$	$\mathrm{Re}\, s > \lvert \mathrm{Im}\, a \rvert$

		$g(s)$	$f(t)$	
14.6.2	1	$F\left(a, \sin^{-1}\frac{1}{s^{\frac{1}{2}}}\right)$	$\frac{e^t}{2\pi^{\frac{1}{2}}t}\left[\frac{1}{t^{\frac{1}{2}}} * e^{\left(\frac{a^2}{2}-1\right)t}\, I_0\left(\frac{a^2}{2}t\right)\right]$	$\mathrm{Re}\, s > 0$
15	1	$\frac{1}{s}\theta_1(a\|s)$	$\frac{1}{\pi}\sum_{n=-\infty}^{\infty}(-1)^n \frac{\sin[2(a+n-\frac{1}{2})t^{\frac{1}{2}}]}{a+n-\frac{1}{2}}$	$\|\mathrm{Re}\, a\| < \frac{1}{2}$ $\mathrm{Re}\, s > 0$
	2	$\frac{1}{s}\theta_2(0\|s)$	$0 \qquad 0 < t < \frac{\pi^2}{4}$ $2n+2 \qquad \pi^2(n+\frac{1}{2})^2 < t < \pi^2(n+\frac{3}{2})^2$	$\mathrm{Re}\, s > 0$ $n = 0, 1, 2, \ldots$
	3	$\frac{1}{s}\theta_2(a\|s)$	$\frac{1}{\pi}\sum_{n=-\infty}^{\infty}(-1)^n \frac{\sin[2(a+n)t^{\frac{1}{2}}]}{a+n}$	$0 < \mathrm{Re}\, a < 1$ $\mathrm{Re}\, s > 0$
	4	$\frac{1}{s}\theta_3(0\|s)$	$2n+1 \qquad \pi^2 n^2 < t < \pi^2(n+1)^2$	$\mathrm{Re}\, s > 0$ $n = 0, 1, 2, \ldots$
	5	$\frac{1}{s}\theta_3(a\|s)$	$\frac{1}{\pi}\sum_{n=-\infty}^{\infty}\frac{\sin[2(a+n)t^{\frac{1}{2}}]}{a+n}$	$0 < \mathrm{Re}\, a < 1$ $\mathrm{Re}\, s > 0$
	6	$\frac{1}{s}\theta_4(0\|s)$	$1 \qquad (2n)^2\pi^2 < t < (2n+1)^2\pi^2$ $-1 \qquad (2n+1)^2\pi^2 < t < (2n+2)^2\pi^2$	$\mathrm{Re}\, s > 0$ $n = 0, 1, 2, \ldots$
	7	$\frac{1}{s}\theta_4(a\|s)$	$\frac{1}{\pi}\sum_{n=-\infty}^{\infty}\frac{\sin[2(a+n+\frac{1}{2})t^{\frac{1}{2}}]}{a+n+\frac{1}{2}}$	$\|\mathrm{Re}\, a\| < \frac{1}{2}$ $\mathrm{Re}\, s > 0$
15.2	1	$\frac{1}{s^{\frac{1}{2}}}\theta_1(a\|s)$	$\frac{1}{\pi^{\frac{1}{2}}}\sum_{n=-\infty}^{\infty}(-1)^n J_0[2(a+n-\frac{1}{2})t^{\frac{1}{2}}]$	$\mathrm{Re}\, s > 0$

		$g(s)$	$f(t)$	
15.2 (Contd.)	2	$\frac{1}{s^{\nu}}\theta_1(a\|s)$	$\frac{t^{\frac{\nu}{2}-\frac{1}{4}}}{\pi^{\frac{1}{2}}}\sum_{n=-\infty}^{\infty}\frac{(-1)^n J_{\nu-\frac{1}{2}}[2(a+n-\frac{1}{2})t^{\frac{1}{2}}]}{(a+n-\frac{1}{2})^{\nu-\frac{1}{2}}}$	$\mathrm{Re}\, \nu > \frac{1}{2}$ $\|\mathrm{Re}\, a\| < \frac{1}{2}$ $\mathrm{Re}\, s > 0$
	3	$\frac{1}{s^{\frac{1}{2}}}\theta_2(a\|s)$	$\frac{1}{\pi^{\frac{1}{2}}}\sum_{n=-\infty}^{\infty}(-1)^n J_0[2(a+n)t^{\frac{1}{2}}]$	$\mathrm{Re}\, s > 0$
	4	$\frac{1}{s^{\nu}}\theta_2(a\|s)$	$\frac{t^{\frac{\nu}{2}-\frac{1}{4}}}{\pi^{\frac{1}{2}}}\sum_{n=-\infty}^{\infty}\frac{(-1)^n J_{\nu-\frac{1}{2}}[2(a+n)t^{\frac{1}{2}}]}{(a+n)^{\nu-\frac{1}{2}}}$	$\mathrm{Re}\, \nu > \frac{1}{2}$ $0 < \mathrm{Re}\, a < 1$ $\mathrm{Re}\, s > 0$
	5	$\frac{1}{s^{\frac{1}{2}}}\theta_3(a\|s)$	$\frac{1}{\pi^{\frac{1}{2}}}\sum_{n=-\infty}^{\infty}J_0[2(a+n)t^{\frac{1}{2}}]$	$\mathrm{Re}\, s > 0$
	6	$\frac{1}{s^{\nu}}\theta_3(a\|s)$	$\frac{t^{\frac{\nu}{2}-\frac{1}{4}}}{\pi^{\frac{1}{2}}}\sum_{n=-\infty}^{\infty}\frac{J_{\nu-\frac{1}{2}}[2(a+n)t^{\frac{1}{2}}]}{(a+n)^{\nu-\frac{1}{2}}}$	$\mathrm{Re}\, \nu > \frac{1}{2}$ $0 < \mathrm{Re}\, a < 1$ $\mathrm{Re}\, s > 0$
	7	$\frac{1}{s^{\frac{1}{2}}}\theta_4(a\|s)$	$\frac{1}{\pi^{\frac{1}{2}}}\sum_{n=-\infty}^{\infty}J_0[2(a+n+\frac{1}{2})t^{\frac{1}{2}}]$	$\mathrm{Re}\, s > 0$
	8	$\frac{1}{s^{\nu}}\theta_4(a\|s)$	$\frac{t^{\frac{\nu}{2}-\frac{1}{4}}}{\pi^{\frac{1}{2}}}\sum_{n=-\infty}^{\infty}\frac{J_{\nu-\frac{1}{2}}[2(a+n+\frac{1}{2})t^{\frac{1}{2}}]}{(a+n+\frac{1}{2})^{\nu-\frac{1}{2}}}$	$\mathrm{Re}\, \nu > \frac{1}{2}$ $\|\mathrm{Re}\, a\| < \frac{1}{2}$ $\mathrm{Re}\, s > 0$
15.3.2	1	$e^{a^2 s}[\theta_3(2as\|4s) + \hat{\theta}_3(2as\|4s)]$ $-\frac{1}{2\pi^{\frac{1}{2}}s^{\frac{1}{2}}}$	$\frac{\sinh a}{2\pi t^{\frac{1}{2}}[\cosh a - \cos(t^{\frac{1}{2}})]}$	$\mathrm{Re}\, a > 0$ $\mathrm{Re}\, s > 0$

		$g(s)$	$f(t)$	
16.2	1	$\mathrm{Erfc}(a^{\frac12}s^{\frac12})$	$0 \quad 0<t<a$ $\dfrac{a^{\frac12}}{\pi t(t-a)^{\frac12}} \quad t>a$	$a>0$ $\mathrm{Re}\, s>0$
	2	$\dfrac{1}{s^{\frac12}}\mathrm{Erf}(a^{\frac12}s^{\frac12})$	$\dfrac{1}{(\pi t)^{\frac12}} \quad 0<t<a$ $0 \quad t>a$	$a>0$ $\mathrm{Re}\, s>-\infty$
	3	$\dfrac{1}{s^{\frac12}}\mathrm{Erfc}(a^{\frac12}s^{\frac12})$	$0 \quad 0<t<a$ $\dfrac{1}{(\pi t)^{\frac12}} \quad t>a$	$a>0$ $\mathrm{Re}\, s>0$
	4	$\mathrm{Erf}\left(\dfrac{a}{s^{\frac12}}\right)$	$\dfrac{\sin(2at^{\frac12})}{\pi t}$	$\mathrm{Re}\, s>0$
16.3.1	1	$e^{a^2s^2}\mathrm{Erfc}(as)$	$\dfrac{e^{-\frac{t^2}{4a^2}}}{(\pi a^2)^{\frac12}}$	$\mathrm{Re}\, a^2>0$ $\mathrm{Re}\, s>-\infty$
	2	$\dfrac1s e^{a^2s^2}\mathrm{Erfc}(as)$	$\mathrm{Erf}\left(\dfrac{t}{2a}\right)$	$\mathrm{Re}\, a^2>0$ $\mathrm{Re}\, s>0$
	3	$1-\pi^{\frac12}as\, e^{a^2s^2}\mathrm{Erfc}(as)$	$\dfrac{1}{2a^2}\, te^{-\frac{t^2}{4a^2}}$	$\mathrm{Re}\, a^2>0$ $\mathrm{Re}\, s>-\infty$
	4	$\dfrac{1-e^{a^2s^2}\mathrm{Erfc}(as)}{s}$	$\mathrm{Erfc}\left(\dfrac{t}{2a}\right)$	$\mathrm{Re}\, a^2>0$ $\mathrm{Re}\, s>-\infty$
	5	$\dfrac{e^{s^2}\mathrm{Erfc}(s)}{s-a}$	$e^{a(t+a)}[\mathrm{Erf}(\frac{t}{2}+a)-\mathrm{Erf}(a)]$	$\mathrm{Re}\, s>\mathrm{Re}\, a$

		$g(s)$	$f(t)$	
16.3.1 (Contd.)	6	$\dfrac{e^{\frac{s^2}{4a^2}}\mathrm{Erfc}(\frac{s}{2a})}{s-a}$	$e^{at+\frac14}[\mathrm{Erf}(at+\frac12)-\mathrm{Erf}(\frac12)]$	$\mathrm{Re}\, s>\mathrm{Re}\, a$
	7	$\dfrac{e^{s^2}}{s}\mathrm{Erfc}(s+a)$	$0 \quad 0<t<2a$ $\mathrm{Erf}(\frac{t}{2})-\mathrm{Erf}(a) \quad t>2a$	$a>0$ $\mathrm{Re}\, s>0$
	8	$e^{a^2s^2}\mathrm{Erfc}(as+\frac{b}{2a})$	$0 \quad 0<t<b$ $\dfrac{e^{-\frac{t^2}{4a^2}}}{(\pi a^2)^{\frac12}} \quad t>b$	$\mathrm{Re}\, a^2>0$ $b>0$ $\mathrm{Re}\, s>-\infty$
	9	$\dfrac1s e^{\frac{s^2}{a^2}}[\mathrm{Erf}(\frac{s}{a})-\mathrm{Erf}(\frac{s}{a}+b)]$	$\mathrm{Erf}(\frac{at}{2}) \quad 0<t<\frac{2b}{a}$ $\mathrm{Erf}(b) \quad t>\frac{2b}{a}$	$b>0$ $\mathrm{Re}\, s>0$
16.3.2	1	$e^{as}\mathrm{Erfc}(a^{\frac12}s^{\frac12})$	$\dfrac{a^{\frac12}}{\pi t^{\frac12}(t+a)}$	$\lvert\arg a\rvert<\pi$ $\mathrm{Re}\, s>0$
	2	$\dfrac{1}{s^{\frac12}}e^{as}\mathrm{Erfc}(a^{\frac12}s^{\frac12})$	$\dfrac{1}{\pi^{\frac12}(t+a)^{\frac12}}$	$\lvert\arg a\rvert<\pi$ $\mathrm{Re}\, s>0$
	3	$\dfrac{e^{as}}{s^{\frac32}}\mathrm{Erfc}(a^{\frac12}s^{\frac12})$	$\dfrac{2}{\pi^{\frac12}}[(t+a)^{\frac12}-a^{\frac12}]$	$\lvert\arg a\rvert<\pi$ $\mathrm{Re}\, s>0$
	4	$(\frac{s}{\pi})^{\frac12}e^{-bs}-a^{\frac12}\mathrm{Erfc}(a^{\frac12}s^{\frac12})$	$0 \quad 0<t<a$ $\dfrac{(t-a)^{\frac12}}{\pi t} \quad t>a$	$a>0$ $\mathrm{Re}\, s>0$

		$g(s)$	$f(t)$	
16.3.2 (Contd.)	5	$e^{-as}-(\pi as)^{\frac{1}{2}}\mathrm{Erfc}[(as)^{\frac{1}{2}}]$	$0 \quad 0<t<a$ $\frac{a^{\frac{1}{2}}}{2t^{\frac{3}{2}}} \quad t>a$	$a>0$ $\mathrm{Re}\, s>0$
	6	$\frac{1}{(\pi s)^{\frac{1}{2}}}-a^{\frac{1}{2}}e^{as}\mathrm{Erfc}(a^{\frac{1}{2}}s^{\frac{1}{2}})$	$\frac{t^{\frac{1}{2}}}{\pi(t+a)}$	$\lvert\arg a\rvert<\pi$ $\mathrm{Re}\, s>0$
	7	$1-(\pi as)^{\frac{1}{2}}e^{as}\mathrm{Erfc}(a^{\frac{1}{2}}s^{\frac{1}{2}})$	$\frac{a^{\frac{1}{2}}}{2(t+a)^{\frac{3}{2}}}$	$\lvert\arg a\rvert<\pi$ $\mathrm{Re}\, s>0$
	8	$\frac{1}{s^{\frac{1}{2}}}e^{-as}-\pi^{\frac{1}{2}}s^{\frac{1}{2}}\mathrm{Erfc}(a^{\frac{1}{2}}s^{\frac{1}{2}})$	$0 \quad 0<t<a$ $\frac{1}{2t^{\frac{3}{2}}} \quad t>a$	$a>0$ $\mathrm{Re}\, s>0$
	9	$\frac{e^{\frac{1}{s}}}{s^{\frac{1}{2}}}\mathrm{Erfc}\left(\frac{1}{s^{\frac{1}{2}}}\right)$	$\frac{e^{-2t^{\frac{1}{2}}}}{(\pi t)^{\frac{1}{2}}}$	$\mathrm{Re}\, s>0$
	10	$\frac{e^{\frac{1}{s}}}{s^{\frac{1}{2}}}\mathrm{Erfc}\left(-\frac{1}{s^{\frac{1}{2}}}\right)$	$\frac{e^{2t^{\frac{1}{2}}}}{(\pi t)^{\frac{1}{2}}}$	$\mathrm{Re}\, s>0$
	11	$\frac{e^{-\frac{a^2}{s}}}{s^{\frac{1}{2}}}\mathrm{Erf}\left(\frac{ia}{s^{\frac{1}{2}}}\right)$	$\frac{i\sin(2at^{\frac{1}{2}})}{(\pi t)^{\frac{1}{2}}}$	$\mathrm{Re}\, s>0$
	12	$\frac{e^{\frac{1}{4s}}}{s^{\frac{3}{2}}}\mathrm{Erfc}\left(-\frac{1}{2s^{\frac{1}{2}}}\right)$	$\frac{2}{\pi^{\frac{1}{2}}}(e^{t^{\frac{1}{2}}}-1)$	$\mathrm{Re}\, s>0$
	13	$\frac{1}{s^{\frac{3}{2}}}e^{\frac{a^2}{s}}\mathrm{Erf}\left(\frac{a}{s^{\frac{1}{2}}}\right)+\frac{1}{\pi^{\frac{1}{2}}as}$	$\frac{\cosh(2at^{\frac{1}{2}})}{\pi^{\frac{1}{2}}a}$	$\mathrm{Re}\, s>0$

		$g(s)$	$f(t)$	
16.3.2 (Contd.)	14	$\frac{1}{s}+\frac{i\pi^{\frac{1}{2}}a}{s^{\frac{3}{2}}}e^{-\frac{a^2}{s}}\mathrm{Erf}\left(\frac{ia}{s^{\frac{1}{2}}}\right)$	$\cos(2a\,t^{\frac{1}{2}})$	$\mathrm{Re}\, s>0$
	15	$\frac{1}{s^{\nu}}e^{\frac{a}{s}}\mathrm{Erfc}[(\frac{a}{s})^{\frac{1}{2}}]$	$\left(\frac{t}{a}\right)^{\frac{\nu-1}{2}}\left[I_{\nu-1}(2a^{\frac{1}{2}}t^{\frac{1}{2}})-L_{\nu-1}(2a^{\frac{1}{2}}t^{\frac{1}{2}})\right]$	$\mathrm{Re}\,\nu>0$ $\mathrm{Re}\, s>0$
	16	$\frac{e^{\frac{a}{s}}}{s^{\nu}}\mathrm{Erf}[(\frac{a}{s})^{\frac{1}{2}}]$	$\left(\frac{t}{a}\right)^{\frac{\nu-1}{2}}L_{\nu-1}(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	$\mathrm{Re}\,\nu>-\frac{1}{2}$ $\mathrm{Re}\, s>0$
	17	$\frac{1}{s^{\frac{1}{2}}}e^{\frac{a}{s}}\mathrm{Erfc}[(\frac{a}{s})^{\frac{1}{2}}]$	$\frac{e^{-2a^{\frac{1}{2}}t^{\frac{1}{2}}}}{(\pi t)^{\frac{1}{2}}}$	$\lvert\arg a\rvert<\pi$ $\mathrm{Re}\, s>0$
	18	$\frac{1}{s^{\frac{3}{2}}}e^{\frac{a}{s}}\mathrm{Erfc}[(\frac{a}{s})^{\frac{1}{2}}]$	$\frac{1-e^{-2a^{\frac{1}{2}}t^{\frac{1}{2}}}}{(a\pi)^{\frac{1}{2}}}$	$\lvert\arg a\rvert<\pi$ $\mathrm{Re}\, s>0$
	19	$\frac{1}{s^{\nu}}e^{as}\mathrm{Erfc}[(as)^{\frac{1}{2}}]$	$\frac{t^{\nu-\frac{1}{2}}{}_2F_1[1,\frac{1}{2};\nu+\frac{1}{2};-\frac{t}{a}]}{(\pi a)^{\frac{1}{2}}\Gamma(\nu+\frac{1}{2})}$	$\mathrm{Re}\,\nu>-\frac{1}{2}$ $\lvert\arg a\rvert<\pi$ $\mathrm{Re}\, s>0$
	20	$\frac{1}{s^{\frac{1}{2}}}e^{\frac{a}{s}}\mathrm{Erf}[(\frac{a}{s})^{\frac{1}{2}}]$	$\frac{\sinh(2a^{\frac{1}{2}}t^{\frac{1}{2}})}{(\pi t)^{\frac{1}{2}}}$	$\mathrm{Re}\, s>0$
	21	$\frac{1}{s^{\frac{3}{2}}}e^{\frac{a}{s}}\mathrm{Erf}[(\frac{a}{s})^{\frac{1}{2}}]$	$\frac{\cosh(2a^{\frac{1}{2}}t^{\frac{1}{2}})-1}{(\pi a)^{\frac{1}{2}}}$	$\mathrm{Re}\, s>0$
	22	$\frac{1}{s}-\frac{\pi^{\frac{1}{2}}a^{\frac{1}{2}}}{s^{\frac{3}{2}}}e^{\frac{a}{s}}\mathrm{Erfc}[(\frac{a}{s})^{\frac{1}{2}}]$	$e^{-2a^{\frac{1}{2}}t^{\frac{1}{2}}}$	$\lvert\arg a\rvert<\pi$ $\mathrm{Re}\, s>0$

		g(s)	f(t)	
16.3.2 (Contd.)	23	$\frac{1}{s^{\frac{3}{2}}} e^{\frac{a}{s}} \mathrm{Erf}[(\frac{a}{s})^{\frac{1}{2}}]$	$\frac{t^{\frac{1}{2}}}{a\pi^{\frac{1}{2}}} \sinh(2a^{\frac{1}{2}}t^{\frac{1}{2}}) - \frac{t}{a^{\frac{1}{2}}\pi^{\frac{1}{2}}} - \frac{\cosh(2a^{\frac{1}{2}}t^{\frac{1}{2}})-1}{2a^{\frac{3}{2}}\pi^{\frac{1}{2}}}$	Re $s > 0$
16.3.2.1	1	$e^{as^2}\mathrm{Erfc}(a^{\frac{1}{2}}s^{\frac{1}{2}})$	$\frac{e^{-\frac{t^2}{4a}}}{(\pi a)^{\frac{1}{2}}}$	Re $s > -\infty$
	2	$1-(\pi a)^{\frac{1}{2}} s\, e^{as^2}\mathrm{Erfc}(a^{\frac{1}{2}}s^{\frac{1}{2}})$	$\frac{t}{2a} e^{-\frac{t^2}{4a}}$	Re $s > -\infty$
	3	$\frac{1}{s^2} - \frac{i\pi^{\frac{1}{2}}}{as^{\frac{5}{2}}}(\frac{s}{2}-a^2)e^{-\frac{a^2}{s}}\mathrm{Erf}\left(\frac{ia}{s^{\frac{1}{2}}}\right)$	$\frac{t^{\frac{1}{2}}}{a}\sin(2at^{\frac{1}{2}})$	Re $s > 0$
	4	$\frac{(\frac{s}{2}+a)e^{\frac{a}{s}}}{s^{\frac{5}{2}}}\mathrm{Erf}\left(\frac{a^{\frac{1}{2}}}{s^{\frac{1}{2}}}\right) - \frac{a^{\frac{1}{2}}}{\pi^{\frac{1}{2}}s^2}$	$\frac{t^{\frac{1}{2}}}{\pi^{\frac{1}{2}}}\sinh(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	Re $s > 0$
	5	$\frac{(\frac{s}{2}+a)e^{\frac{a}{s}}}{s^{\frac{5}{2}}}\mathrm{Erfc}\left(\frac{a^{\frac{1}{2}}}{s^{\frac{1}{2}}}\right) - \frac{a^{\frac{1}{2}}}{\pi^{\frac{1}{2}}s^2}$	$\frac{t^{\frac{1}{2}}}{\pi^{\frac{1}{2}}}e^{-2a^{\frac{1}{2}}t^{\frac{1}{2}}}$	$\lvert\arg a\rvert < \pi$, Re $s > 0$
17.1	1	$[\frac{1}{2}-C(\frac{s^2}{4})]^2 + [\frac{1}{2}-S(\frac{s^2}{4})]^2$	$\frac{2}{\pi}\frac{\sin(t^2)}{t}$	Re $s > 0$
	2	$\frac{1}{s}\{[\frac{1}{2}-C(\frac{s^2}{4a})]^2 + [\frac{1}{2}-S(\frac{s^2}{4a})]^2\}$	$\frac{1}{\pi}\,\mathrm{Si}(at^2)$	Re $s > 0$
17.5.1	1	$\cos(\frac{s^2}{4})[\frac{1}{2}-C(\frac{s^2}{4})] + \sin(\frac{s^2}{4})[\frac{1}{2}-S(\frac{s^2}{4})]$	$(\frac{2}{\pi})^{\frac{1}{2}}\sin(t^2)$	Re $s > 0$
	2	$\cos(\frac{s^2}{4})[\frac{1}{2}-S(\frac{s^2}{4})] - \sin(\frac{s^2}{4})[\frac{1}{2}-C(\frac{s^2}{4})]$	$(\frac{2}{\pi})^{\frac{1}{2}}\cos(t^2)$	Re $s > 0$

		g(s)	f(t)	
17.5.1 (Contd.)	3	$\frac{1}{s}\{\cos(\frac{s^2}{a})[\frac{1}{2}-C(\frac{s^2}{a})] + \sin(\frac{s^2}{a})[\frac{1}{2}-S(\frac{s^2}{a})]\}$	$S(\frac{at^2}{4})$	Re $s > 0$
	4	$\frac{1}{s}\{\cos(\frac{s^2}{a})[\frac{1}{2}-S(\frac{s^2}{a})] - \sin(\frac{s^2}{a})[\frac{1}{2}-C(\frac{s^2}{a})]\}$	$C(\frac{at^2}{4})$	Re $s > 0$
18	1	$[\mathrm{ci}(as)]^2 + [\mathrm{si}(as)]^2$	$\frac{1}{t}\log\left(1+\frac{t^2}{a^2}\right)$	Re $s > 0$
18.5	1	$\mathrm{ci}(as)\sin(as)+\mathrm{si}(as)\cos(as)$	$-\frac{a}{t^2+a^2}$	Re $a > 0$, Re $s > 0$
	2	$\mathrm{ci}(as)\cos(as)-\mathrm{si}(as)\sin(as)$	$\frac{t}{t^2+a^2}$	Re $a > 0$, Re $s > 0$
	3	$\frac{1}{s}[\mathrm{ci}(as)\sin(as)+\mathrm{si}(as)\cos(as)]$	$-\tan^{-1}(\frac{t}{a})$	Re $a > 0$, Re $s > 0$
	4	$\frac{1}{s}[\mathrm{ci}(as)\cos(as)-\mathrm{si}(as)\sin(as)]$	$\frac{1}{2}\log\left(1+\frac{t^2}{a^2}\right)$	Re $a > 0$, Re $s > 0$
	5	$\frac{1}{s}[\frac{\pi}{2}+\mathrm{ci}(as)\sin(as)+\mathrm{si}(as)\cos(as)]$	$\cot^{-1}\frac{t}{a}$	Re $s > 0$
	6	$\frac{1}{s}[\log a + \mathrm{ci}(as)\cos(as)-\mathrm{si}(as)\sin(as)]$	$\frac{1}{2}\log(t^2+a^2)$	Re $s > 0$
	7	$[b\cos(as)-c\sin(as)]\mathrm{ci}(as)-[b\sin(as)+c\cos(as)]\mathrm{si}(as)$	$\frac{bt+ac}{t^2+a^2}$	$\lvert\arg(\pm ia)\rvert < \pi$, Re $s > 0$
18.5.1	1	$\frac{1}{s^2}[\frac{\pi}{2}+\mathrm{ci}(as)\sin(as)+\mathrm{si}(as)\cos(as)] + \frac{a}{s}[\mathrm{si}(as)\sin(as)-\mathrm{ci}(as)\cos(as)]$	$t\cot^{-1}\frac{t}{a}$	Re $s > 0$

		$g(s)$	$f(t)$	
18.5.1 (Contd.)	2	$\frac{1}{s^2}[ci(as)\sin(as)+si(as)\cos(as)]$ $-\frac{a}{s}[ci(as)\cos(as)-si(as)\sin(as)]$	$-t\tan^{-1}(\frac{t}{a})$	$Re\, s>0$
19	1	$Ei(-as)$	$0 \quad 0<t<a$ $-\frac{1}{t} \quad t>a$	$a>0$ $Re\, s>0$
	2	$\frac{1}{s}Ei(-as)$	$0 \quad 0<t<a$ $\log\frac{a}{t} \quad t>a$	$a>0$ $Re\, s>0$
	3	$\frac{1}{s}[\log a-Ei(-as)]$	$\log a \quad 0<t<a$ $\log t \quad t>a$	$a>0$ $Re\, s>0$
	4	$[Ei(-\frac{s}{2})]^2$	$0 \quad 0<t<1$ $\frac{2}{t}\log(2t-1) \quad t>1$	$Re\, s>0$
	5	$\frac{1}{s}Ei(-\frac{a}{s})$	$2\,Ji_0(2a^{\frac12}t^{\frac12})$	$Re\, s>0$
	6	$Ei(-as)Ei(-bs)$	$0 \quad 0<t<a+b$ $\frac{1}{t}\log\frac{(t-a)(t-b)}{ab} \quad t>a+b$	$a>0$ $b>0$ $Re\, s>0$
	7	$Ei(\frac{s}{a})Ei(-\frac{s}{a})$	$\frac{1}{t}\log\lvert 1-a^2t^2\rvert$	$Re\, s>0$
19.1	1	$\frac{1}{s}Ei[-b(s+a)]$	$0 \quad 0<t<b$ $Ei(-ba)-Ei(-at) \quad t>b$	$b>0$ $a\neq 0$ $Re\, s>-Re\, a$

		$g(s)$	$f(t)$	
19.1 (Contd.)	2	$Ei(a-s)+Ei(-a-s)$	$0 \quad 0<t<1$ $-\frac{2\cosh(at)}{t} \quad t>1$	$Re\, s>\lvert Re\, a\rvert$
	3	$-Ei(a-s)+Ei(-a-s)$	$0 \quad 0<t<1$ $\frac{2\sinh(at)}{t} \quad t>1$	$Re\, s>\lvert Re\, a\rvert$
19.2	1	$\frac{1}{s^\nu}Ei(-\frac{a}{s})$	$2t^{\nu-1}\int_\infty^{a^{\frac12}t^{\frac12}} u^{-\nu}J_{\nu-1}(2u)\,du$	$Re\,\nu>0$ $Re\, a>0$ $Re\, s>0$
19.3	1	$e^{as}Ei(-as)$	$-\frac{1}{t+a}$	$\lvert\arg a\rvert<\pi$ $Re\, s>0$
	2	$\frac{1}{s}e^{as}Ei(-as)$	$-\log(1+\frac{t}{a})$	$\lvert\arg a\rvert<\pi$ $Re\, s>0$
	3	$\frac{1}{s}e^{\frac{a}{s}}Ei(-\frac{a}{s})$	$-2K_0(2a^{\frac12}t^{\frac12})$	$Re\, s>0$
	4	$e^{as}Ei[-(a+b)s]$	$0 \quad 0<t<b$ $-\frac{1}{t+a} \quad t>b$	$a\neq 0$ $b>0$ $\lvert\arg(a+b)\rvert<\pi$ $Re\, s>0$
	5	$se^{as}Ei(-as)+\frac{1}{a}$	$\frac{1}{(t+a)^2}$	$\lvert\arg a\rvert<\pi$ $a\neq 0$ $Re\, s>0$
	6	$e^{-as}+asEi(-as)$	$0 \quad 0<t<a$ $\frac{a}{t^2} \quad t>a$	$a>0$ $Re\, s>0$
	7	$\frac{1}{s}e^{-as}\overline{Ei}(as)$	$-\log\lvert 1-\frac{t}{a}\rvert$	$a>0$ $Re\, s>0$

		g(s)	f(t)	
19.3 (Contd.)	8	$e^{-as}\,\overline{Ei}(as)$	$\frac{1}{a-t}$ Cauchy Principal Value of integral	$a>0$ $Re\,s>0$
	9	$\frac{1}{s}[\log a - e^{as}\,Ei(-as)]$	$\log(t+a)$	$\|\arg a\|<\pi$ $Re\,s>0$
	10	$\frac{1}{s}[e^{-as}\log a - Ei(-as)]$	$0 \quad 0<t<a$ $\log t \quad t>a$	$a>0$ $Re\,s>0$
	11	$e^{as}\{Ei[-(a+c)s]-Ei[-(a+b)s]\}$	$0 \quad 0<t<b$ $\frac{1}{t+a} \quad b<t<c$ $0 \quad t>c$	$Re\,s>-\infty$ $-a$ not between b and c
	12	$be^{as}\,Ei(-as)+ce^{-as}\,Ei(as)$	$-\frac{(b+c)t-(b-c)a}{t^2-a^2}$	$\|\arg(\pm a)\|<\pi$ $Re\,s>0$
	13	$be^{as}\,Ei(-as)+ce^{-as}\,\overline{Ei}(as)$	$-\frac{(b+c)t-(b-c)a}{t^2-a^2}$ Cauchy Principal Value of integral	$a>0$ $Re\,s>0$
	14	$\frac{1}{s}[\log(a^2)-e^{as}\,Ei(-as)-e^{-as}\,Ei(as)]$	$\log(t^2-a^2)$	$Im\,a>0$ $Re\,s>0$
	15	$\frac{1}{s}[\log(a^2)-e^{as}\,Ei(-as)-e^{-as}\,\overline{Ei}(as)]$	$\log\|t^2-a^2\|$	$Re\,a>0$ $Re\,s>0$
	16	$e^{as}[Ei(-as)]^2$	$0 \quad 0<t<a$ $\frac{2\log\frac{t}{a}}{t+a} \quad t>a$	$a>0$ $Re\,s>0$

		g(s)	f(t)	
19.3 (Contd.)	17	$e^{as}\{[Ei(-as)]^2-2\log a\,Ei(-2as)\}$	$0 \quad 0<t<a$ $\frac{2\log t}{t+a} \quad t>a$	$a>0$ $Re\,s>0$
	18	$e^{(a+b)s}Ei(-as)Ei(-bs)$	$\frac{\log\frac{(t+a)(t+b)}{ab}}{t+a+b}$	$\|\arg(a+b)\|<\pi$ $a,b\neq 0$ $Re\,s>0$
	19	$e^{(a+b)s}[Ei(-as)Ei(-bs)-\log(ab)Ei(-as-bs)]$	$\frac{\log[(t+a)(t+b)]}{t+a+b}$	$\|\arg(a+b)\|<\pi$ $a,b\neq 0$ $Re\,s>0$
19.3.1	1	$e^{\frac{s^2}{4a^2}}\,Ei\left(-\frac{s^2}{4a^2}\right)$	$\frac{2ai}{\pi^{\frac{1}{2}}}e^{-a^2t^2}\,Erf(iat)$	$\|\arg a\|<\frac{\pi}{4}$ $Re\,s>0$
	2	$\sum_{m=1}^{n}(m-1)!(-a)^{n-m}s^{-m}+(-1)^{n-1}a^n e^{as}\,Ei(-as)$	$\frac{t^n}{t+a}$	$\|\arg a\|<\pi$ $n=1,2,3,\ldots$ $Re\,s>0$
	3	$\sum_{m=1}^{n-1}(m-1)!\,\frac{(-s)^{n-m-1}}{a^m}-(-s)^{n-1}e^{as}\,Ei(-as)$	$\frac{(n-1)!}{(t+a)^n}$	$\|\arg a\|<\pi$ $n=2,3,4,\ldots$ $Re\,s>0$
	4	$e^{-bs}\sum_{m=1}^{n-1}(m-1)!\,\frac{(-s)^{n-m-1}}{(a+b)^m}-(-s)^{n-1}e^{as}\,Ei[-(a+b)s]$	$0 \quad 0<t<b$ $\frac{(n-1)!}{(t+a)^n} \quad t>b$	$n=2,3,4,\ldots$ $\|\arg(a+b)\|<\pi$ $Re\,s>0$
19.3.2	1	$\frac{1}{s^{\nu}}e^{\frac{a}{s}}\,Ei(-\frac{a}{s})$	$t^{\nu-1}\int_{\infty}^{at}u^{-\frac{\nu+1}{2}}J_{\nu-1}[2(u-at)^{\frac{1}{2}}]du$	$Re\,\nu>0$ $Re\,s>0$
19.4	1	$\frac{1}{s}[Ei(-as)-\log(\gamma s)]$	$\log t \quad 0<t<a$ $\log a \quad t>a$	$a>0$ $Re\,s>-\infty$

		$g(s)$	$f(t)$	
19.4.1 (Contd.)	1	$\log\frac{s+a}{s-a} + Ei(a-s) - Ei(-a-s)$	$\frac{2\sinh(at)}{t}$ $\quad 0<t<1$ $0 \quad t>1$	Re $s>-\infty$
19.16.3.1	1	$e^{\frac{s^2}{a^2}}\left[\mathrm{Erfc}\left(\frac{s}{a}\right) + \frac{i}{\pi} Ei\left(-\frac{s^2}{a^2}\right)\right]$	$\frac{a}{\pi^{\frac{1}{2}}} e^{-\frac{a^2t^2}{4}} \mathrm{Erfc}\left(\frac{iat}{2}\right)$	Re $s>0$
21	1	$\frac{\psi^2(s)}{s}$	$[\log\lvert\gamma(e^t-1)\rvert]^2 - \frac{\pi^2}{6} - t\log(e^t-1) + 1\cdot\log(e^t-1)$	Re $s>0$
	2	$B(as,\nu)$	$\frac{1}{a}(1-e^{-\frac{t}{a}})^{\nu-1}$	Re $a>0$ Re $\nu>0$ Re $s>0$
	3	$\Gamma(-\nu,as)$	$0 \quad 0<t<a$ $\frac{(t-a)^\nu}{\Gamma(\nu+1)a^\nu t} \quad t>a$	$a>0$ Re $\nu>-1$ Re $s>0$
	4	$\Gamma(-s,1)$	e^{-e^t}	Re $s>-\infty$
	5	$\Gamma(-s,a)-\Gamma(-s,b)$	$0 \quad 0<t<\log a$ $e^{-e^t} \quad \log a<t<\log b$ $0 \quad t>\log b$	$1<a<b$ Re $s>-\infty$
	6	$\gamma(\nu,\frac{a}{s})$	$a^{\frac{\nu}{2}} t^{\frac{\nu}{2}-1} J_\nu(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	Re $\nu>0$ Re $s>0$
	7	$\gamma(\nu,-\frac{a}{s})$	$a^{\frac{\nu}{2}}(-1)^\nu t^{\frac{\nu}{2}-1} I_\nu(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	Re $\nu>0$ Re $s>0$

		$g(s)$	$f(t)$	
21 (Contd.)	8	$\gamma(s,1)$	$e^{-e^{-t}}$	Re $s>0$
	9	$\gamma(-s,b)-\gamma(-s,a)$	$0 \quad 0<t<\log a$ $e^{-e^t} \quad \log a<t<\log b$ $0 \quad t>\log b$	$1<a<b$ Re $s>-\infty$
	10	$\frac{1}{s}\psi(as)$	$-\log[\gamma(e^{\frac{t}{a}}-1)]$	Re $a>0$ Re $s>0$
	11	$\psi^{(n)}(as)$	$\frac{t^n}{(-a)^{n+1}(1-e^{-\frac{t}{a}})}$	Re $a>0$ $n=0,1,2,\ldots$ Re $s>0$
21.1	1	$B(\nu,s-ia)+B(\nu,s+ia)$	$2(1-e^{-t})^{\nu-1}\cos(at)$	Re $\nu>0$ Re $s>\lvert \mathrm{Im}\, a\rvert$
	2	$B(\nu,s-ia)-B(\nu,s+ia)$	$2i(1-e^{-t})^{\nu-1}\sin(at)$	Re $\nu>-1$ Re $s>\lvert \mathrm{Im}\, a\rvert$
	3	$B\left(\frac{s}{2a}-\frac{\nu}{2},\nu+1\right)$	$2^{\nu+1}a^\nu\sinh^\nu(at)$	Re $a>0$ Re $\nu>-1$ Re $s>\mathrm{Re}(a\nu)$
	4	$B\left(\frac{s}{a}-\nu,2\nu+1\right)$	$2^\nu a[\cosh(at)-1]^\nu$	Re $a>0$ Re $\nu>-\frac{1}{2}$ Re $s>\mathrm{Re}(a\nu)$
	5	$\frac{B(\frac{s}{a},\nu+n+1)B(\frac{s}{a},b+n-\frac{s}{a})}{B(\frac{s}{a},b-\frac{s}{a})}$	$a(1-e^{-at})^\nu {}_2F_1[-n,\nu+b+n;b;e^{-at}]$	Re $\nu>-1$ Re $s>0$
	6	$B(s,a)[\psi(s+a)-\psi(s)]$	$t(1-e^{-t})^{a-1}$	Re $a>0$ Re $s>0$

	No.	$g(s)$	$f(t)$	
21.1 (Contd.)	7	$\psi\left(\frac{s+1}{2}\right)-\psi\left(\frac{s}{2}\right)$	$\frac{2}{1+e^{-t}}$	$\mathrm{Re}\, s>0$
	8	$\frac{1}{s}\left[\psi\left(\frac{s+1}{2}\right)-\psi\left(\frac{s}{2}\right)\right]$	$2\log\frac{1+e^{t}}{2}$	$\mathrm{Re}\, s>0$
	9	$s\left[\psi\left(\frac{s+2}{4}\right)-\psi\left(\frac{s}{4}\right)\right]-2$	$2\,\mathrm{sech}^2 t$	$\mathrm{Re}\, s>-2$
	10	$\psi\left(\frac{s+2}{4}\right)-\psi\left(\frac{s}{4}\right)-\frac{2}{s}$	$2\tanh t$	$\mathrm{Re}\, s>0$
	11	$\frac{1}{s}\left[\psi\left(\frac{s+2}{4}\right)-\psi\left(\frac{s}{4}\right)\right]-\frac{2}{s^2}$	$2\log\cosh t$	$\mathrm{Re}\, s>0$
	12	$\psi(s+a)-\psi(s)$	$\frac{1-e^{-at}}{1-e^{-t}}$	$\mathrm{Re}\, s>\mathrm{Max}\; 0,\ -\mathrm{Re}\, a$
	13	$\psi\left(\frac{s+3a}{4a}\right)-\psi\left(\frac{s+a}{4a}\right)$	$2a\,\mathrm{sech}(at)$	$\mathrm{Re}\, s>\mathrm{Max}\,-\mathrm{Re}\, a,$ $-\mathrm{Re}\, 3a$
	14	$\psi(s-ia)-\psi(s+ia)$	$-2i\,\frac{\sin(at)}{1-e^{-t}}$	$\mathrm{Re}\, s>\lvert\mathrm{Im}\, a\rvert$
	15	$\psi(s-ia+1)-\psi(s+ia+1)$	$-2i\,\frac{\sin(at)}{e^{t}-1}$	$\mathrm{Re}\, s>\lvert\mathrm{Im}\, a\rvert-1$
	16	$\psi(as+b)-\psi(as+c)$	$\frac{e^{-\frac{ct}{a}}-e^{-\frac{bt}{a}}}{a\left(1-e^{-\frac{t}{a}}\right)}$	$\mathrm{Re}\, a>0$ $\mathrm{Re}\, s>\mathrm{Max}\,-\mathrm{Re}\,\frac{c}{a},\ -\mathrm{Re}\,\frac{c}{b}$
	17	$\psi(s+a)+\psi(s+b)-\psi(s+a+b)-\psi(s)$	$\frac{(1-e^{-at})(1-e^{-bt})}{1-e^{-t}}$	$\mathrm{Re}\, s>\mathrm{Max}\, 0,\ -\mathrm{Re}\, a,$ $-\mathrm{Re}\, b,\ -\mathrm{Re}(a+b)$

	No.	$g(s)$	$f(t)$	
21.1 (Contd.)	18	$\frac{\Gamma\left(-\frac{ab+is}{2b}\right)}{\Gamma\left(1+\frac{ab-is}{2b}\right)}$	$\frac{(2i)^{a+1}\sin^a(bt)}{\Gamma(a+1)}$	$\mathrm{Re}\, a>-1$ $\mathrm{Re}\, s>\mathrm{Max}\; 2\,\mathrm{Im}\, b$ $+\mathrm{Im}(ab),\ -\mathrm{Im}(ab)$
	19	$\frac{\Gamma\left(-\frac{1}{4}-\frac{is}{2}\right)}{(1-2is)\Gamma\left(\frac{1}{4}-\frac{is}{2}\right)}$	$(i-1)\left(\frac{\sin t}{\pi}\right)^{\frac{1}{2}}$	$\mathrm{Re}\, s>0$
	20	$\frac{\Gamma(s+a)}{\Gamma(s+b)}(s+c)_n$	$\frac{e^{-at}}{\Gamma(b-a-n)}(1-e^{-t})^{b-a-n-1}\,{}_2F_1[-n,b-c-n;b-a-n;1-e^{-t}]$	$\mathrm{Re}(b-a)>n$ $n=0,1,2,\ldots$ $\mathrm{Re}\, s>-\mathrm{Re}\, a$
	21	$\frac{\Gamma(s)\Gamma(c+s)}{\Gamma(a+s)\Gamma(b+s)}$	$\frac{(1-e^{-t})^{a+b-c-1}}{\Gamma(a+b-c)}\,{}_2F_1[a-c,b-c;a+b-c;1-e^{-t}]$	$\mathrm{Re}(a+b-c)>0$ $\mathrm{Re}\, s>\mathrm{Max}\; 0,\ -\mathrm{Re}\, c$
	22	$\frac{\Gamma\left(1+\frac{is}{2a}\right)\Gamma\left(1-\frac{is}{2a}\right)}{s\Gamma\left(\nu+1+\frac{is}{2a}\right)\Gamma\left(\nu+1-\frac{is}{2a}\right)}$	$\frac{2^{2\nu}}{\Gamma(2\nu+1)}\lvert\sin(at)\rvert^{2\nu}$	$a>0$ $\mathrm{Re}\,\nu>-\frac{1}{2}$ $\mathrm{Re}\, s>0$
	23	$\frac{\Gamma(s-n-\mu)\Gamma\left(s+n-\mu+\frac{1}{2}\right)}{\Gamma(s+n+\mu+1)\Gamma\left(s-n+\mu+\frac{1}{2}\right)}$	$\frac{4^{\mu}\pi^{\frac{1}{2}}}{\Gamma\left(2\mu+\frac{1}{2}\right)}\sinh^{2\mu}\left(\frac{t}{2}\right)P_{2n}^{-2\mu}\left(\cosh\frac{t}{2}\right)$	$\mathrm{Re}\,\mu>-\frac{1}{4}$ $n=0,1,2,\ldots$ $\mathrm{Re}\, s>n+\mathrm{Re}\,\mu$
	24	$\frac{\Gamma(s+a)\Gamma(s+b)}{\Gamma(s+c)\Gamma(s+d)}$	$\frac{e^{-at}(1-e^{-t})^{c+d-a-b-1}}{\Gamma(c+d-a-b)}\,{}_2F_1[d-b,c-b;c+d-a-b;1-e^{-t}]$	$\mathrm{Re}(c+d-a-b)>0$ $\mathrm{Re}\, s>-\mathrm{Re}\, a,\ -\mathrm{Re}\, b$
	25	$\int_0^{\infty}\frac{du}{(s+au)\Gamma(u+1)}$	$\nu(e^{-at})$	$\mathrm{Re}\, s>0$
21.2	1	$\frac{\Gamma(\nu,as)}{s^{\nu}}$	$0 \quad 0<t<a$ $t^{\nu-1} \quad t>a$	$a>0$ $\mathrm{Re}\, s>0$

		$g(s)$	$f(t)$	
21.2 (Contd.)	2	$s^{\mu}\Gamma(\nu,\frac{a}{s})$	$t^{-\mu-1}\int_{at}^{\infty} u^{\frac{\mu+\nu-1}{2}} J_{\nu-\mu-1}(2u^{\frac{1}{2}})du$	$Re(\mu+\nu) < -\frac{1}{2}$ M.3.1 $Re\ \mu > 0$ $Re\ s > 0$
	3	$\frac{\gamma(\nu,as)}{s^{\nu}}$	$t^{\nu-1}$ $0 < t < a$ 0 $t > a$	$Re\ \nu > 0$ $a > 0$ $Re\ s > -\infty$
	4	$s^{\mu}\gamma(\nu,\frac{a}{s})$	$t^{-\mu-1}\int_{0}^{at} u^{\frac{\mu+\nu-1}{2}} J_{\nu-\mu-1}(2u^{\frac{1}{2}})du$	$Re\ \nu > 0$ $Re(\nu-\mu) > 0$ $Re\ s > 0$
	5	$\gamma\left(\nu,\frac{(s^2+a^2)^{\frac{1}{2}}-s}{2}\right)$	$(\frac{a}{2})^{\nu}\frac{t^{\frac{\nu}{2}-1}}{(t+1)^{\frac{\nu}{2}}} J_{\nu}[a(t^2+t)^{\frac{1}{2}}]$	$Re\ \nu > 0$ $Re\ s > \lvert Im\ a\rvert$
21.2.1	1	$\frac{\Gamma(\nu,bs)}{(s-a)s^{\nu}}$	0 $0 < t < a$ $e^{at}\int_{b}^{t} e^{-au}u^{\nu-1}du$ $t > a$	$a > 0$ $Re\ s > b$
21.3	1	$\frac{B(s,a)}{b^{s}}$	0 $0 < t < \log b$ $(1-be^{-t})^{a-1}$ $t > \log b$	$Re\ a > 0$ $b > 0$ $Re\ s > 0$
	2	$a^{s}\Gamma(-s,a)$	$\exp(-a\,e^{t})$	$Re\ a > 0$ $Re\ s > -\infty$
	3	$e^{as}\Gamma(\nu,as)$	$\frac{a^{\nu}}{\Gamma(1-\nu)(t+a)t^{\nu}}$	$Re\ \nu < 1$ $Re\ s > 0$
	4	$\frac{\gamma(s,a)}{a^{s}}$	$\exp(-ae^{-t})$	$Re\ s > 0$

	$g(s)$	$f(t)$	
1	$\frac{1}{2^{s}sB\left(\frac{s+n+1}{2},\frac{s-n+1}{2}\right)}$	$\frac{T_n(e^{-t})}{\pi(1-e^{-2t})^{\frac{1}{2}}}$	$n = 0,1,2,\ldots$ $Re\ s > 0$
2	$\frac{1}{2^{s}sB\left(\frac{s+\nu+1}{2},\frac{s-\nu+1}{2}\right)}$	$\frac{\cos[\nu\cos^{-1}(e^{-t})]}{\pi(1-e^{-2t})^{\frac{1}{2}}}$	$Re\ s > 0$
3	$e^{as^2}\Gamma(\nu,as^2)$	$\frac{2^{2\nu}e^{i\pi(\nu-\frac{1}{2})-\frac{t^2}{4a}}\gamma(\frac{1}{2}-\nu,\frac{e^{i\pi}t^2}{4a})}{a^{\frac{1}{2}}\Gamma(1-2\nu)}$	$Re\ a > 0$ $Re\ \nu < 1$ $Re\ s > 0$
4	$\frac{e^{-\pi s}}{\Gamma(a+is)\Gamma(a-is)}$	$\frac{(2\sin\frac{t}{2})^{2a-2}}{2\pi\Gamma(2a-1)}$ $0 < t < 2\pi$ 0 $t > 2\pi$	$Re\ a > \frac{3}{2}$ $Re\ s > -\infty$
5	$\frac{b^{-as}\Gamma(as)}{\Gamma(as+n+1)}$	0 $0 < t < a\log b$ $\frac{(1-b\,e^{-\frac{t}{a}})^{n}}{n!a}$ $t > a\log b$	$n = 0,1,2,\ldots$ $a > 0$ $b \geq 1$ $Re\ s > 0$
6	$\frac{\Gamma(s)}{2^{s}\Gamma\left(\frac{s+n+1}{2}\right)\Gamma\left(\frac{s-n+1}{2}\right)}$	$\frac{T_n(e^{-t})}{\pi(1-e^{-2t})^{\frac{1}{2}}}$	$n = 0,1,2,\ldots$ $Re\ s > 0$
7	$\frac{\Gamma(s-\mu+1)}{\Gamma(s+\mu+1)}e^{\pm si\theta}$	$\frac{\pi^{\frac{1}{2}}e^{\mp[\frac{\theta}{2}+(\frac{\mu}{2}-\frac{1}{4})\pi]i}\operatorname{cosec}^{\mu}\theta}{2^{\mu-1}\Gamma(\mu+\frac{1}{2})[\pi P_{\nu}^{\mu}(\cos\theta)\pm 2i\,Q_{\nu}^{\mu}(\cos\theta)]}\cdot$ $e^{(\mu-1)t}(1-e^{-t})^{\mu-\frac{1}{2}}[(1-e^{-t})\sin\theta\mp i(1-e^{-t})\cos\theta]^{\mu-\frac{1}{2}}$	$Re\ \mu > -\frac{1}{2}$ $Re\ s > Re(\mu-1)$
8	$\frac{2^{s}\Gamma(\frac{s+\nu+1}{2})\Gamma(\frac{s-\nu}{2})}{\Gamma(s+\mu+1)}$	$2\pi^{\frac{1}{2}}(1-e^{-2t})^{\frac{\mu}{2}}P_{\nu}^{-\mu}(e^{t})$	$Re\ \mu > -1$ $Re\ s > Max\ Re\ \nu,$ $-Re(1+\nu)$

		$g(s)$	$f(t)$	
21.3.2	1	$\dfrac{e^{as}\Gamma(\nu,as)}{s^{\nu}}$	$(t+a)^{\nu-1}$	$\lvert\arg a\rvert<\pi$ $\mathrm{Re}\, s>0$
	2	$\dfrac{e^{\frac{a}{s}}\Gamma(-\nu,\frac{a}{s})}{s^{\nu+1}}$	$2\left(\frac{t}{a}\right)^{\frac{\nu}{2}}\dfrac{K_{\nu}(2a^{\frac{1}{2}}t^{\frac{1}{2}})}{\Gamma(\nu+1)}$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\, s>0$
	3	$s^{\nu-\frac{3}{2}}e^{\frac{a}{s}}\Gamma(\nu,\frac{a}{s})$	$\Gamma(\nu)\left(\frac{a}{t}\right)^{\frac{\nu}{2}-\frac{1}{4}}\left[I_{\frac{1}{2}-\nu}(2a^{\frac{1}{2}}t^{\frac{1}{2}})-L_{\nu-\frac{1}{2}}(2a^{\frac{1}{2}}t^{\frac{1}{2}})\right]$	$\mathrm{Re}\,\nu<\frac{3}{2}$ $\mathrm{Re}\, s>0$
	4	$s^{\nu-1}e^{-\frac{a}{s}}\Gamma(\nu,e^{i\pi}\frac{a}{s})$	$-\dfrac{\pi i}{\Gamma(1-\nu)}\left(\frac{a}{t}\right)^{\frac{\nu}{2}}H_{\nu}^{(2)}(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	$\mathrm{Re}\,\nu<1$ $\mathrm{Re}\, s>0$
	5	$s^{\nu-1}e^{-\frac{a}{s}}\Gamma(\nu,e^{-i\pi}\frac{a}{s})$	$\dfrac{\pi i}{\Gamma(1-\nu)}\left(\frac{a}{t}\right)^{\frac{\nu}{2}}H_{\nu}^{(1)}(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	$\mathrm{Re}\,\nu<1$ $\mathrm{Re}\, s>0$
	6	$\dfrac{e^{-as}\gamma(\nu,-as)}{s^{\nu}}$	$(a-t)^{\nu-1}$ $\quad 0<t<a$ 0 $\quad t>a$	$\mathrm{Re}\,\nu>0$ $a>0$ $\mathrm{Re}\, s>-\infty$
	7	$s^{\nu-1}e^{\frac{a}{s}}\gamma(\nu,\frac{a}{s})$	$\Gamma(\nu)\left(\frac{a}{t}\right)^{\frac{\nu}{2}}I_{\nu}(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	$\mathrm{Re}\,\nu>0$ $\mathrm{Re}\, s>0$
	8	$s^{\nu-1}e^{-\frac{a}{s}}\gamma(\nu,\frac{a}{s}e^{-i\pi})$	$\Gamma(\nu)\left(\frac{a}{t}\right)^{\frac{\nu}{2}}e^{-i\nu\pi}J_{\nu}(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	$\mathrm{Re}\, s>0$
	9	$s^{\nu-\frac{3}{2}}e^{\frac{a}{s}}\gamma(\nu,\frac{a}{s})$	$\Gamma(\nu)\left(\frac{a}{t}\right)^{\frac{\nu}{2}-\frac{1}{4}}L_{\nu-\frac{1}{2}}(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	$\mathrm{Re}\, s>0$
	10	$s^{\mu}e^{\frac{a}{s}}\gamma(\nu,\frac{a}{s})$	$\dfrac{a^{\nu}t^{\nu-\mu-1}}{\nu\Gamma(\nu-\mu)}\,{}_1F_2\left[\begin{matrix}1; & at\\ \nu+1,\nu-\mu; & \end{matrix}\right]$	$\mathrm{Re}\,\nu>0$ $\mathrm{Re}\,\mu>0$ $\mathrm{Re}\, s>0$

		$g(s)$	$f(t)$	
21.3.2.1	1	$\dfrac{1}{s^{\frac{1}{2}}}e^{as^2}\Gamma(\frac{1}{4},as^2)$	$\dfrac{\Gamma(\frac{1}{4})t^{\frac{1}{2}}}{2a^{\frac{1}{2}}}e^{-\frac{t^2}{8a}}I_{\frac{1}{4}}\left(\frac{t^2}{8a}\right)$	$\mathrm{Re}\, a>0$ $\mathrm{Re}\, s>0$
	2	$\dfrac{e^{\frac{a^2s^2}{2}}\Gamma(\nu,\frac{a^2s^2}{2})}{s^{2\nu}}$	$\dfrac{\Gamma(\nu)a^{2\nu-1}e^{-\frac{t^2}{4a^2}}}{(2\pi)^{\frac{1}{2}}}\left[D_{-2\nu}(-\frac{t}{a})-D_{-2\nu}(\frac{t}{a})\right]$	$\mathrm{Re}\, s>0$
	3	$\dfrac{e^{-as}\Gamma(\nu,ab)}{s}-\dfrac{b^{\nu}\Gamma[\nu,a(s+b)]}{s(s+b)^{\nu}}$	0 $\quad 0<t<a$ $\Gamma(\nu,bt)$ $\quad t>a$	$\mathrm{Re}\, s>-\mathrm{Re}\, b$
21.4	1	$\psi(\frac{s}{a})-\log\frac{s}{a}$	$\frac{1}{t}-\dfrac{a}{1-e^{-at}}$	$\mathrm{Re}\, s>0$
	2	$\frac{1}{s}[\psi(\frac{s}{a})-\log\frac{s}{a}]$	$\log\dfrac{at}{e^{at}-1}$	$\mathrm{Re}\, s>0$
	3	$\psi(\frac{s}{2})+\frac{1}{s}-\log\frac{s}{2}$	$\frac{1}{t}-\coth t$	$\mathrm{Re}\, s>0$
	4	$\frac{1}{s}[\log\frac{s}{2}-\frac{1}{2s}-\psi(\frac{s}{2})]$	$\log\sinh t-\log t$	$\mathrm{Re}\, s>0$
	5	$s+\log\Gamma(s)-s\log s+\frac{1}{2}\log\frac{s}{2\pi}$	$\dfrac{1}{t(1-e^{-t})}-\dfrac{1}{t^2}-\dfrac{1}{2t}$	$\mathrm{Re}\, s>0$
	6	$\log\dfrac{(2\pi)^{\frac{1}{2}}}{B(\frac{s}{2},\frac{1}{2})}-\frac{1}{2}\psi(s)$	$\dfrac{1}{1+e^{-t}}\left(\frac{1}{2}-\frac{1}{t}+\dfrac{1}{e^{t}-1}\right)$	$\mathrm{Re}\, s>0$
21.4.1	1	$\log\left[\frac{s}{4}\left\{\dfrac{\Gamma(\frac{s}{4})}{\Gamma(\frac{s+2}{4})}\right\}^2\right]$	$\dfrac{\tanh t}{t}$	$\mathrm{Re}\, s>0$

		$g(s)$	$f(t)$	
21.4.1 (Contd.)	2	$\log\left[\frac{s}{4}\left\{\frac{\Gamma(\frac{s+3}{4})}{\Gamma(\frac{s+1}{4})}\right\}^2\right]$	$\frac{1-\operatorname{sech} t}{t}$	Re s > o
	3	$\log\left[(s+a)\left(\frac{\Gamma(s+a)}{\Gamma(s+a+\frac{1}{2})}\right)^2\right]$	$\frac{1}{t}e^{-at}\tanh\frac{t}{4}$	Re s > - Re a
	4	$\log\left[\frac{1}{s+a}\left(\frac{\Gamma(s+a+\frac{3}{4})}{\Gamma(s+a+\frac{1}{4})}\right)^2\right]$	$\frac{1}{t}e^{-at}[1-\operatorname{sech}\frac{t}{4}]$	Re s > - Re a
	5	$\log\frac{\Gamma(\frac{s}{2})\Gamma(\frac{s+a+1}{2})}{\Gamma(\frac{s+1}{2})\Gamma(\frac{s+a}{2})}$	$\frac{1-e^{-at}}{t(1+e^{-t})}$	Re s > Max o, - Re a
	6	$\log\frac{\Gamma(s)\Gamma(s+a+b)}{\Gamma(s+a)\Gamma(s+b)}$	$\frac{(1-e^{-at})(1-e^{-bt})}{t(1-e^{-t})}$	Re s > Max o, - Re a, - Re b, - Re(a+b)
	7	$\log\frac{\Gamma(s+a)\Gamma(s+b+\frac{1}{2})}{\Gamma(s+a+\frac{1}{2})\Gamma(s+b)}$	$\frac{e^{-at}-e^{-bt}}{t(1+e^{-\frac{t}{2}})}$	Re s > Max - Re a, - Re b
	8	$\log\frac{\Gamma(s+a)\Gamma(s+b+c)}{\Gamma(s+a+c)\Gamma(s+b)}$	$\frac{(e^{-at}-e^{-bt})(1-e^{-ct})}{t(1-e^{-t})}$	Re s > Max - Re a, - Re(b+c), - Re b, - Re(a+c)
	9	$\log\frac{\Gamma(s)\Gamma(s+a+b)\Gamma(s+b+c)\Gamma(s+c+a)}{\Gamma(s+a)\Gamma(s+b)\Gamma(s+c)\Gamma(s+a+b+c)}$	$\frac{(1-e^{-at})(1-e^{-bt})(1-e^{-ct})}{t(1-e^{-t})}$	2 Re s > |Re a|+|Re b| +|Re c|
	10	$\log\frac{\Gamma(as+b)}{\Gamma(as+c)}+(c-b)\psi(as+d)$	$\frac{1}{1-e^{-\frac{t}{a}}}\left[\frac{e^{-\frac{bt}{a}}-e^{-\frac{ct}{a}}}{t}+\frac{(b-c)e^{-\frac{dt}{a}}}{a}\right]$	Re s > Max - Re $\frac{b}{a}$, - Re $\frac{c}{a}$, - Re $\frac{d}{a}$; Re a > o

		$g(s)$	$f(t)$	
1.4.1 Contd.)	17	$\psi(\frac{s+1}{2})-\log\frac{s}{2}$	$\frac{1}{t}-\operatorname{cosech} t$	Re s > o
	18	$\log\frac{\Gamma(\frac{s+1}{2})}{\Gamma(\frac{s}{2})}-\frac{1}{2}\psi(\frac{s+1}{2})$	$\frac{t-e^{t}+1}{2t\sinh t}$	Re s > o
	19	$\log\frac{\Gamma(\frac{s+1}{2})}{\Gamma(\frac{s}{2})}-\frac{1}{2}\psi(\frac{s-1}{2})$	$\frac{t-e^{t}+1}{2t\sinh t}+e^{t}$	Re s > 1
	20	$\log\frac{\Gamma(\frac{s}{2})}{\Gamma(\frac{s-1}{2})}-\frac{1}{2}\psi(\frac{s}{2})$	$\frac{e^{t}(t-2e^{\frac{t}{2}}\cosh\frac{t}{2})}{2t(\cosh t+1)}$	Re s > 1
	21	$\log\frac{\Gamma(1+\frac{s}{2})}{\Gamma(\frac{1+s}{2})}-\frac{1}{2}\psi(\frac{s}{2})$	$\frac{1-e^{t}+te^{2t}}{t(e^{2t}-1)}$	Re s > o
	22	$\sum_{n=o}^{\infty}\left[\log(s+n)-\psi(s+n)-\frac{1}{2(s+n)}\right]$	$\frac{1}{1-e^{-t}}\left(\frac{1}{e^{t}-1}-\frac{1}{t}+\frac{1}{2}\right)$	Re s > o
1.4.3.1	1	$\log\frac{e^{s}\Gamma(s)}{(2\pi)^{\frac{1}{2}}s^{s-\frac{1}{2}}}$	$\frac{1}{t}\left(\frac{1}{1-e^{-t}}-\frac{1}{t}-\frac{1}{2}\right)$	Re s > o
	2	$\frac{1}{s}\frac{d}{ds}\log\frac{e^{s}\Gamma(s)}{(2\pi)^{\frac{1}{2}}s^{s-\frac{1}{2}}}$	$-\log\frac{2\sinh\frac{t}{2}}{t}$	Re s > o
.9.1	1	$B(s,n+\frac{3}{2})L_{n}^{s+\frac{1}{2}}(a)$	$\frac{He_{2n+1}[(2a)^{\frac{1}{2}}(1-e^{-t})^{\frac{1}{2}}]}{(-2)^{n}(2a)^{\frac{1}{2}}n!}$	n = 0,1,2,... Re s > o
	2	$B(s+\frac{1}{2},n+\frac{1}{2})L_{n}^{s}(a)$	$\frac{He_{2n}[(2a)^{\frac{1}{2}}(1-e^{-t})^{\frac{1}{2}}]}{(-2)^{n}n!(e^{t}-1)^{\frac{1}{2}}}$	n = 0,1,2,... Re s > $-\frac{1}{2}$

		$g(s)$	$f(t)$	
21.10.3.1	1	$\Gamma(s+\frac{1}{2})(\frac{2}{a})^s J_s(a)$	$\dfrac{\cos[a(1-e^{-t})^{\frac{1}{2}}]}{\pi^{\frac{1}{2}}(e^t-1)^{\frac{1}{2}}}$	$\operatorname{Re} s > -\frac{1}{2}$
	2	$\Gamma(s)(\frac{2}{a})^s J_{\nu+s}(a)$	$(1-e^{-t})^{\frac{\nu}{2}} J_\nu[a(1-e^{-t})^{\frac{1}{2}}]$	$\operatorname{Re} \nu > -1$ $\operatorname{Re} s > 0$
21.12.3.1	1	$\Gamma(s+\frac{1}{2})(\frac{2}{a})^s I_s(a)$	$\dfrac{\cosh[a(1-e^{-t})^{\frac{1}{2}}]}{\pi^{\frac{1}{2}}(e^t-1)^{\frac{1}{2}}}$	$\operatorname{Re} s > -\frac{1}{2}$
21.13.3.1	1	$(\frac{a}{2})^s \dfrac{K_s(a)}{\Gamma(s+\frac{1}{2})}$	$\dfrac{\cos[a(e^t-1)^{\frac{1}{2}}]}{2\pi^{\frac{1}{2}}(1-e^{-t})^{\frac{1}{2}}}$	$a > 0$ $\operatorname{Re} s > -\frac{1}{2}$
	2	$\dfrac{a^s}{\Gamma(s+1)} K_{\nu-s}(2a)$	$\frac{1}{2}(e^t-1)^{\frac{\nu}{2}} J_\nu[2a(e^t-1)^{\frac{1}{2}}]$	$a > 0$ $\operatorname{Re} \nu > -1$ $\operatorname{Re} s > \frac{1}{2}\operatorname{Re}(\nu-\frac{3}{2})$
22	1	$\frac{1}{s}\zeta(s)$	$n \quad \log n < t < \log(n+1)$	$\operatorname{Re} s > 0$ $n = 1,2,3,\ldots$
	2	$\zeta(\nu, as)$	$\dfrac{t^{\nu-1}}{a^\nu \Gamma(\nu)(1-e^{-\frac{t}{a}})}$	$\operatorname{Re} \nu > 1$ $\operatorname{Re} a > 0$ $\operatorname{Re} s > 0$
	3	$\dfrac{\zeta'(s)}{s\zeta(s)}$	$-\psi(e^t)$	$\operatorname{Re} s > 1$
22.1	1	$\frac{1}{s}\zeta(s+a)$	$\sum_{1 \le n \le e^t} n^{-a}$	$\operatorname{Re} s > -\operatorname{Re} a - 1,$
	2	$\zeta(\nu, \frac{s}{2}+1)$	$\dfrac{(2t)^{\nu-1}(\coth t - 1)}{\Gamma(\nu)}$	$\operatorname{Re} \nu > 1$ $\operatorname{Re} s > -2$

		$g(s)$	$f(t)$	
22.1 (Contd.)	3	$\zeta(\nu, \frac{s+1}{2})$	$\dfrac{(2t)^{\nu-1}\operatorname{cosech} t}{\Gamma(\nu)}$	$\operatorname{Re} \nu > 1$ $\operatorname{Re} s > -1$
	4	$\int_0^\infty \zeta(u+1, \frac{s}{a})\,du$	$\dfrac{a\nu(at)}{1-e^{-at}}$	$\operatorname{Re} s > \operatorname{Re} a$
22.2	1	$\frac{1}{s^a}\zeta(s)$	$\dfrac{1}{\Gamma(a)} \sum_{1 \le n \le e^t} (t-\log n)^{a-1}$	$\operatorname{Re} a > 0$ $\operatorname{Re} s > 0$
	2	$\zeta(\nu, \frac{s}{2}) - \dfrac{2^{\nu-1}}{s^\nu}$	$\dfrac{(2t)^{\nu-1}\coth t}{\Gamma(\nu)}$	$\operatorname{Re} \nu > 1$ $\operatorname{Re} s > 0$
22.3.1	1	$\dfrac{\zeta(s-1)}{2^s}$	$\tanh[\frac{\pi}{2}(e^{2t}-1)^{\frac{1}{2}}]$	$\operatorname{Re} s > 0$
	2	$\frac{1}{s}(1-2^{2-s})\zeta(s-1)$	$n \quad \log(2n-1) < t < \log(2n+1)$	$\operatorname{Re} s > 0$ $n = 1,2,3,\ldots$
23	1	$P_\nu(s)$	$-\left(\dfrac{2}{\pi^3 t}\right)^{\frac{1}{2}} \sin(\nu\pi)\, K_{\nu+\frac{1}{2}}(t)$	$-1 < \operatorname{Re} \nu < 0$ $\operatorname{Re} s > -1$
	2	$\frac{1}{s}P_\nu(\frac{s}{a})$	$-\dfrac{\sin(\nu\pi)\, W_{0,\nu+\frac{1}{2}}(2at)}{\pi t}$	$0 < \operatorname{Re} \nu < 1$ $\operatorname{Re} s > 0$
	3	$Q_\nu(\frac{s}{a})$	$\left(\dfrac{a\pi}{2t}\right)^{\frac{1}{2}} I_{\nu+\frac{1}{2}}(at)$	$\operatorname{Re} \nu > -1$ $\operatorname{Re} s > \lvert\operatorname{Re} a\rvert$
	4	$Q_s^\mu(a)$	$0 \qquad 0 < t < \cosh^{-1} a$ $\dfrac{\pi^{\frac{1}{2}}[-(a^2-1)^{\frac{1}{2}}]^\mu e^{-\frac{t}{2}}}{2^{\frac{1}{2}}\Gamma(\frac{1}{2}-\mu)(\cosh t - a)^{\mu+\frac{1}{2}}} \qquad t > \cosh^{-1} a$	$\operatorname{Re} \mu < \frac{1}{2}$ $\operatorname{Re} s > -\operatorname{Re}(\mu+1)$

		$g(s)$	$f(t)$	
23.1	1	$Q_\nu\left(\frac{s^2+a^2+b^2}{2ab}\right)$	$\pi a^{\frac{1}{2}} b^{\frac{1}{2}} J_{\nu+\frac{1}{2}}(at)\, J_{\nu+\frac{1}{2}}(bt)$	$\operatorname{Re}\nu > -1$ $\operatorname{Re}s > \lvert\operatorname{Im}a\rvert+\lvert\operatorname{Im}b\rvert$
23.2	1	$\dfrac{P_\nu^{-\mu}(\frac{s}{a})}{(s^2-a^2)^{\frac{\mu}{2}}}$	$\left(\frac{2a}{\pi}\right)^{\frac{1}{2}} \dfrac{t^{\mu-\frac{1}{2}} K_{\nu+\frac{1}{2}}(at)}{\Gamma(\mu-\nu)\Gamma(\mu+\nu+1)}$	$\operatorname{Re}(\mu+\nu) > -1$ $\operatorname{Re}(\mu-\nu) > 0$ $\operatorname{Re}s > -\operatorname{Re}a$
	2	$s^\nu (a^2-s^2)^{\frac{\nu}{2}} P_\nu^\nu(\frac{a}{s})$	$\dfrac{(\frac{\pi}{2})^{\frac{1}{2}}(\frac{a}{t})^{\nu+\frac{1}{2}}}{\Gamma(-2\nu)}\left[I_{-\nu-\frac{1}{2}}(at) - L_{-\nu-\frac{1}{2}}(at)\right]$	$\operatorname{Re}\nu < 0$ $\operatorname{Re}s > \lvert\operatorname{Re}a\rvert$
	3	$s^{\nu+1}(a^2-s^2)^{\frac{\nu}{2}} P_\nu^\nu(\frac{a}{s})$	$\dfrac{\pi^{\frac{1}{2}} a}{\Gamma(-2\nu)2^{\frac{1}{2}}}(\frac{a}{t})^{\nu+\frac{1}{2}}\left[I_{-\nu-\frac{3}{2}}(at) - L_{-\nu-\frac{3}{2}}(at)\right]$	$\operatorname{Re}\nu < -\frac{1}{2}$ $\operatorname{Re}s > \lvert\operatorname{Re}a\rvert$
	4	$\left(\frac{s^2}{s^2-a^2}\right)^{\frac{\nu}{2}} P_\nu^\nu(\frac{a}{s}) - \dfrac{\Gamma(-\nu)(s^2-a^2)^\nu}{\Gamma(-2\nu)2^{\nu+1}}$	$-(\frac{\pi}{2})^{\frac{1}{2}}(\frac{a}{t})^{\nu+\frac{1}{2}} \dfrac{L_{-\nu-\frac{1}{2}}(at)}{\Gamma(-2\nu)}$	$\operatorname{Re}\nu < 0$ $\operatorname{Re}s > \lvert\operatorname{Re}a\rvert$
	5	$\dfrac{(s-a)^{\frac{\mu}{2}}}{s^{\frac{\nu+1}{2}}} P_\nu^\mu\left(\frac{a^{\frac{1}{2}}}{s^{\frac{1}{2}}}\right)$	$\dfrac{t^{\frac{\nu-\mu-1}{2}} e^{\frac{at}{2}} D_{\mu+\nu}(2^{\frac{1}{2}}a^{\frac{1}{2}}t^{\frac{1}{2}})}{\pi^{\frac{1}{2}} 2^{\frac{\mu-\nu}{2}}\Gamma(\nu-\mu+1)}$	$\operatorname{Re}\mu < 1$ $\operatorname{Re}(\nu-\mu) > -1$ $\operatorname{Re}s > 0$
	6	$\dfrac{P_\mu^{-\nu}\left[\frac{s}{(s^2+a^2)^{\frac{1}{2}}}\right]}{(s^2+a^2)^{\frac{\mu+1}{2}}}$	$\dfrac{t^\mu J_\nu(at)}{\Gamma(\mu+\nu+1)}$	$\operatorname{Re}(\mu+\nu) > -1$ $\operatorname{Re}s > \lvert\operatorname{Im}a\rvert$
	7	$\dfrac{P_\mu^{-\nu}\left[\frac{s}{(s^2-a^2)^{\frac{1}{2}}}\right]}{(s^2-a^2)^{\frac{\mu+1}{2}}}$	$\dfrac{t^\mu I_\nu(at)}{\Gamma(\mu+\nu+1)}$	$\operatorname{Re}(\mu+\nu) > -1$ $\operatorname{Re}s > \lvert\operatorname{Re}a\rvert$
	8	$\dfrac{1}{s^{\frac{1}{2}}}\left\{P_{-\frac{1}{4}}^{-\nu}\left[\frac{(s^2+a^2)^{\frac{1}{2}}}{s}\right]\right\}^2$	$\dfrac{2^{\nu+\frac{1}{2}}}{\Gamma(2\nu+\frac{1}{2})t^{\frac{1}{2}}} J_\nu^2(\frac{at}{2})$	$\operatorname{Re}\nu > -\frac{1}{4}$ $\operatorname{Re}s > \lvert\operatorname{Im}a\rvert$

		$g(s)$	$f(t)$	
23.2 (Contd.)	9	$\dfrac{1}{s^{\frac{1}{2}}} P_{-\frac{1}{4}}^\nu\left[\left(1+\frac{a^2}{s^2}\right)^{\frac{1}{2}}\right] P_{-\frac{1}{4}}^{-\nu}\left[\left(1+\frac{a^2}{s^2}\right)^{\frac{1}{2}}\right]$	$(\frac{2}{\pi t})^{\frac{1}{2}} J_\nu(\frac{at}{2})\, J_{-\nu}(\frac{at}{2})$	$\operatorname{Re}s > \lvert\operatorname{Im}a\rvert$
	10	$\dfrac{P_{\frac{1}{4}}^{-\nu}\left[\frac{(s^2+a^2)^{\frac{1}{2}}}{s}\right] P_{-\frac{1}{4}}^{-\nu}\left[\frac{(s^2+a^2)^{\frac{1}{2}}}{s}\right]}{s^{\frac{1}{2}}(s^2+a^2)^{\frac{1}{2}}}$	$\dfrac{2^{\nu+\frac{3}{2}}}{a\Gamma(2\nu+\frac{3}{2})} t^{\frac{1}{2}} J_\nu^2(\frac{at}{2})$	$\operatorname{Re}\nu > -\frac{3}{4}$ $\operatorname{Re}s > \lvert\operatorname{Im}a\rvert$
	11	$\dfrac{P_{-\frac{1}{4}}^{-\nu}\left[\left(1+\frac{a^2}{s^2}\right)^{\frac{1}{2}}\right] P_{-\frac{1}{4}}^{-\nu-1}\left[\left(1+\frac{a^2}{s^2}\right)^{\frac{1}{2}}\right]}{s^{\frac{1}{2}}(s^2+a^2)^{\frac{1}{2}}}$	$\dfrac{2^{\nu+\frac{5}{2}}}{a\Gamma(2\nu+\frac{5}{2})} t^{\frac{1}{2}} J_\nu(\frac{at}{2})\, J_{\nu+1}(\frac{at}{2})$	$\operatorname{Re}\nu > -\frac{5}{4}$ $\operatorname{Re}s > \lvert\operatorname{Im}a\rvert$
	12	$(s^2+a^2)^{-\frac{\mu+1}{2}}\left\{\Gamma(\mu+\nu+1)\cot(\nu\pi)\, P_\mu^{-\nu}\left[\left(\frac{s^2}{s^2+a^2}\right)^{\frac{1}{2}}\right] - \Gamma(\mu-\nu+1)\operatorname{cosec}(\nu\pi)\, P_\mu^\nu\left[\left(\frac{s^2}{s^2+a^2}\right)^{\frac{1}{2}}\right]\right\}$	$t^\mu Y_\nu(at)$	$\operatorname{Re}(\mu\pm\nu) > -1$ $\operatorname{Re}s > \lvert\operatorname{Im}a\rvert$
	13	$s^{-\frac{1}{2}}(s^2+a^2)^{-\frac{1}{2}}\left\{(\nu+\frac{1}{4})\, P_{-\frac{1}{4}}^\nu\left[\left(1+\frac{a^2}{s^2}\right)^{\frac{1}{2}}\right] P_{\frac{1}{4}}^{-\nu}\left[\left(1+\frac{a^2}{s^2}\right)^{\frac{1}{2}}\right] - (\nu-\frac{1}{4})\, P_{\frac{1}{4}}^\nu\left[\left(1+\frac{a^2}{s^2}\right)^{\frac{1}{2}}\right] P_{-\frac{1}{4}}^{-\nu}\left[\left(1+\frac{a^2}{s^2}\right)^{\frac{1}{2}}\right]\right\}$	$\dfrac{2}{a\pi^{\frac{1}{2}}} t^{\frac{1}{2}} J_\nu(\frac{at}{2})\, J_{-\nu}(\frac{at}{2})$	$\operatorname{Re}s > \lvert\operatorname{Im}a\rvert$
	14	$\dfrac{Q_\nu^\mu(\frac{s}{a})}{(s^2-a^2)^{\frac{\mu}{2}}}$	$\left(\frac{\pi a}{2}\right)^{\frac{1}{2}} \dfrac{\sin[(\mu+\nu)\pi]}{\sin(\nu\pi)} t^{\mu-\frac{1}{2}} I_{\nu+\frac{1}{2}}(at)$	$\operatorname{Re}(\mu+\nu) > -1$ $\operatorname{Re}s > \lvert\operatorname{Re}a\rvert$
	15	$\dfrac{1}{s^\mu} Q_\nu[(\frac{s}{a})^{\frac{1}{2}}]$	$\dfrac{a^{\frac{\nu+1}{2}}\pi^{\frac{1}{2}}\Gamma(\nu+1)t^{\mu+\frac{\nu-1}{2}}}{2^{\nu+1}\Gamma(\nu+\frac{3}{2})\Gamma(\mu+\frac{\nu+1}{2})}\, {}_2F_2\left[\begin{matrix}\frac{\nu+1}{2}, \frac{\nu}{2}+1 & ; \\ \nu+\frac{3}{2}, \mu+\frac{\nu+1}{2} & ;\end{matrix}\, at\right]$	$\operatorname{Re}(\mu+\frac{\nu}{2}) > -\frac{1}{2}$ $\operatorname{Re}s > 0$
	16	$\dfrac{Q_\mu^\nu\left[\frac{s}{(s^2-a^2)^{\frac{1}{2}}}\right]}{(s^2-a^2)^{\frac{\mu+1}{2}}}$	$\dfrac{\sin[(\mu+\nu)\pi]}{\sin(\mu\pi)\Gamma(\mu-\nu+1)} t^\mu K_\nu(at)$	$\operatorname{Re}(\mu\pm\nu) > -1$ $\operatorname{Re}s > -\operatorname{Re}a$

		g(s)	f(t)	
23.2.1	1	$\frac{P^1_{2n+1}\left[\left(\frac{s-a}{s+a}\right)^{\frac12}\right]}{(s+a)^{n+1}}$	$\frac{(-1)^{n+1}}{(a\pi)^{\frac12}}\frac{(n+1)!2^{2n+\frac12}}{(2n)!}t^{n-\frac12}k_{2n+2}(at)$	$n=0,1,2,\ldots$ $\mathrm{Re}\, s>0$
	2	$e^{as}Q^{\mu}_{s-\frac12}(\cosh a)$	$\frac{\pi^{\frac12}e^{\mu\pi i}\sinh^{\mu}a}{\Gamma(\frac12-\mu)2^{\mu+1}[\sinh\frac t2\sinh(a+\frac t2)]^{\mu+\frac12}}$	$\mathrm{Re}\,\mu<\frac12$ $\lvert\arg a\rvert<\pi$ $\mathrm{Re}\, s>-\mathrm{Re}\,\mu-\frac12$
23.8.7	1	$\frac{Q^{\mu}_{\nu}(s)}{\sinh^{\mu}(\cosh^{-1}s)}$	$(\frac{\pi}{2})^{\frac12}\frac{\sin(\mu+\nu)\pi}{\sin(\nu\pi)}t^{\mu-\frac12}I_{\nu+\frac12}(t)$	$\mathrm{Re}(\mu+\nu)>-1$ $\mathrm{Re}\, s>1$
23.21.3.1	1	$2^{s+\frac12}\Gamma(s)(\mu^2-1)^{\frac14-\frac s2}P^{\frac12-s}_{a+s-\frac12}(\mu)$	$\frac{[\mu+(\mu^2-1)^{\frac12}(1-e^{-t})^{\frac12}]^a+[\mu-(\mu^2-1)^{\frac12}(1-e^{-t})^{\frac12}]^a}{\pi^{\frac12}(1-e^{-t})^{\frac12}}$	$\mathrm{Re}\, s>0$
	2	$\frac{\Gamma(s-\mu+\nu+1)\Gamma(s-\mu-\nu)}{\Gamma(s+1)}\left(\frac{a}{a-2}\right)^{\frac s2}P^{\mu-s}_{\nu}(a-1)$	$\left[(e^t-1)\left(\frac{a}{a-2}e^t-1\right)\right]^{\frac{\mu}{2}}P^{-\mu}_{\nu}(ae^t+1-a)$	$\mathrm{Re}\, a>0$ $\mathrm{Re}\,\mu>-1$ $\mathrm{Re}\, s>\mathrm{Max}\ \mathrm{Re}(\mu+\nu)$, $\mathrm{Re}(\mu-\nu-1)$
	3	$\frac{\Gamma(s)e^{-\frac{as}{2}}}{2^{\frac s2}\Gamma(\frac{s+\nu+1}{2})}P^{-\frac{s+\nu}{2}}_{\frac{\nu-s}{2}}[(1-e^{-2a})^{\frac12}]$	0, $\quad 0<t<a$ $\frac{2^{\frac{\nu}{2}}e^{\frac{a\nu}{2}}}{\pi^{\frac12}\Gamma(\nu+1)}\frac{[e^{-a}(1-e^{-2t})^{\frac12}-e^{-t}(1-e^{-2a})^{\frac12}]^{\nu}}{(1-e^{-2t})^{\frac12}}$, $\quad t>a$	$\mathrm{Re}\,\nu>-1$ $a>0$ $\mathrm{Re}\, s>0$
	4	$2^s e^{s\pi i}\Gamma(s)(a^2-1)^{\frac s2}Q^{\nu-s}_{s-1}(a)$	$\Gamma(\nu)e^{\nu\pi i}(a^2-1)^{\frac{\nu}{2}}\frac{[a+(1-e^{-t})^{\frac12}]^{-\nu}+[a-(1-e^{-t})^{\frac12}]^{-\nu}}{2(1-e^{-t})^{\frac12}}$	$\mathrm{Re}\, s>0$
25.2	1	$s^{\nu}H_{\nu}(\frac as)$	$\frac{2^{\nu+\frac32}\pi^{\frac12}}{t^{\nu+1}}S_1(\frac{\nu}{2},\frac{\nu-1}{2},\frac{-\nu-1}{2},\frac{\nu+1}{2};\frac{at}{4})$	$\mathrm{Re}\, s>0$

		g(s)	f(t)	
25.2 (Contd.)	2	$s^{\nu-1}H_{\nu}(\frac as)$	$\frac{2^{\nu+\frac12}\pi^{\frac12}}{t^{\nu}}S_1(\frac{\nu}{2},\frac{\nu-1}{2},\frac{-\nu-1}{2},\frac{\nu-1}{2};\frac{at}{4})$	$\mathrm{Re}\, s>0$
	3	$\frac{H_{\nu}(\frac as)}{s^{\mu}}$	$\frac{a^{\nu+1}t^{\mu+\nu}}{\pi^{\frac12}2^{\nu}\Gamma(\nu+\frac32)\Gamma(\mu+\nu+1)}\,{}_1F_4\left[{1;\atop \frac32,\nu+\frac32,\frac{\mu+\nu+1}{2},\frac{\mu+\nu}{2}+1;}-\frac{a^2t^2}{16}\right]$	$\mathrm{Re}(\mu+\nu)>-1$ $\mathrm{Re}\, s>0$
	4	$\frac{L_{\nu}(\frac as)}{s^{\mu}}$	$\frac{a^{\nu+1}t^{\mu+\nu}}{\pi^{\frac12}2^{\nu}\Gamma(\nu+\frac32)\Gamma(\mu+\nu+1)}\,{}_1F_4\left[{1;\atop \frac32,\nu+\frac32,\frac{\mu+\nu+1}{2},\frac{\mu+\nu}{2}+1;}\frac{a^2t^2}{16}\right]$	$\mathrm{Re}(\mu+\nu)>-1$ $\mathrm{Re}\, s>0$
25.3.2	1	$\frac{e^{-as}L_{\nu}(as)}{s^{\nu}}$	$\frac{(2at-t^2)^{\nu-\frac12}}{\pi^{\frac12}(2a)^{\nu}\Gamma(\nu+\frac12)}$, $\quad 0<t<a$ $-\frac{(2at-t^2)^{\nu-\frac12}}{\pi^{\frac12}(2a)^{\nu}\Gamma(\nu+\frac12)}$, $\quad a<t<2a$ 0, $\quad t>2a$	$\mathrm{Re}\,\nu>-\frac12$ $\mathrm{Re}\, s>-\infty$ $a>0$
25.7.2	1	$\frac{L_{\nu}(as)}{s^{\nu}\sinh(as)}$	$\frac{1}{\pi}(\frac{2}{a})^{\nu}\frac{\Gamma(\nu)}{\Gamma(2\nu)}\left[2a(t-2na)-(t-2na)^2\right]^{\nu-\frac12}$, $\quad 2na<t<(2n+1)a$ $-\frac{1}{\pi}(\frac{2}{a})^{\nu}\frac{\Gamma(\nu)}{\Gamma(2\nu)}\left[2a(t-2na)-(t-2na)^2\right]^{\nu-\frac12}$, $\quad (2n+1)a<t<(2n+2)a$	$a>0$ $\mathrm{Re}\,\nu>-\frac12$ $\mathrm{Re}\, s>0$ $n=0,1,2,\ldots$
25.10	1	$\frac{\pi}{2}[H_1(as)-Y_1(as)]-1$	$\frac{t}{a(t^2+a^2)^{\frac12}}$	$\lvert\arg a\rvert<\frac{\pi}{2}$ $\mathrm{Re}\, s>0$
	2	$\frac1s[H_0(as)-Y_0(as)]$	$\frac4\pi\log\frac{(t+ia)^{\frac12}+(t-ia)^{\frac12}}{(2a)^{\frac12}}=\frac{2}{\pi}\sinh^{-1}\frac ta$	$a>0$ $\mathrm{Re}\, s>0$
	3	$H_0(s)-Y_0(s)$	$\frac{2}{\pi(t^2+1)^{\frac12}}$	$\mathrm{Re}\, s>0$

		$g(s)$	$f(t)$	
25.10.1	1	$\frac{1}{s}[H_1(as)-Y_1(as)]-\frac{2}{\pi a s^2}$	$\frac{2}{\pi a}[(t^2+a^2)^{\frac{1}{2}}-t]$	$\lvert\arg a\rvert<\frac{\pi}{2}$ Re $s>0$
	2	$\frac{1}{s^2}[H_0(s)-Y_0(s)+sH_1(s)-sY_1(s)]-\frac{2}{\pi s}$	$\frac{2}{\pi}t\sinh^{-1}t$	Re $s>0$
25.10.2	1	$\frac{1}{s^{\frac{1}{2}}}[H_0(as^{\frac{1}{2}})-Y_0(as^{\frac{1}{2}})]$	$\frac{2e^{\frac{a^2}{8t}}}{\pi^{\frac{3}{2}}t^{\frac{1}{2}}}K_0\left(\frac{a^2}{8t}\right)$	Re $s>0$
	2	$Y_{-1}(as^{\frac{1}{2}})-H_{-1}(as^{\frac{1}{2}})$	$\frac{ae^{\frac{a^2}{8t}}}{4(\pi t)^{\frac{3}{2}}}[K_1(\frac{a^2}{8t})-K_0(\frac{a^2}{8t})]$	Re $s>0$
	3	$s^{\nu-1}[H_\nu(\frac{a}{s})-Y_\nu(\frac{a}{s})]$	$\frac{\cos(\nu\pi)}{\pi^{\frac{3}{2}}}(\frac{2}{t})^\nu S_3(\frac{\nu}{2},\frac{\nu-1}{2},\frac{-\nu-1}{2},\frac{\nu-1}{2};\frac{at}{4})$	Re $\nu<1$ Re $s>0$
	4	$\frac{1}{s^{\frac{\nu}{2}}}[H_{-\nu}(as^{\frac{1}{2}})-Y_{-\nu}(as^{\frac{1}{2}})]$	$\frac{2^\nu\cos(\nu\pi)}{\pi a^\nu}t^{\nu-1}e^{\frac{a^2}{4t}}\mathrm{Erfc}\left(\frac{a}{2t^{\frac{1}{2}}}\right)$	Re $\nu>-\frac{1}{2}$ Re $s>0$
	5	$\frac{1}{s^\nu}[H_\nu(as)-Y_\nu(as)]$	$\frac{(t^2+a^2)^{\nu-\frac{1}{2}}}{2^{\nu-1}\pi^{\frac{1}{2}}a^\nu\Gamma(\nu+\frac{1}{2})}$	$-\frac{3}{2}<$ Re $\nu<\frac{1}{2}$ Re $s>0$ Re $a>0$
	6	$\frac{1}{s^{\frac{\nu+1}{2}}}[H_\nu(as^{\frac{1}{2}})-Y_\nu(as^{\frac{1}{2}})]$	$\frac{2e^{\frac{a^2}{8t}}W_{\frac{\nu}{2},\frac{\nu}{2}}\left(\frac{a^2}{4t}\right)}{a\pi^{\frac{1}{2}}\Gamma(\nu+\frac{1}{2})t^{\frac{\nu}{2}}}$	$-2<$ Re $\nu<\frac{1}{2}$ Re $s>0$
25.10.2.1	1	$s^{\frac{1}{2}}[H_{\frac{1}{4}}(\frac{s^2}{a})-Y_{\frac{1}{4}}(\frac{s^2}{a})]$	$\frac{a}{\pi^{\frac{1}{2}}}t^{\frac{1}{2}}J_{-\frac{1}{4}}(\frac{at^2}{4})$	$a>0$ Re $s>0$
	2	$s^{\frac{1}{2}}[H_{-\frac{1}{4}}(\frac{s^2}{a})-Y_{-\frac{1}{4}}(\frac{s^2}{a})]$	$\frac{a}{\pi^{\frac{1}{2}}}t^{\frac{1}{2}}J_{\frac{1}{4}}(\frac{at^2}{4})$	$a>0$ Re $s>0$

		$g(s)$	$f(t)$		
25.10.2.1 (Contd.)	3	$s^{\frac{3}{2}}[H_{-\frac{1}{4}}(\frac{s^2}{a})-Y_{-\frac{1}{4}}(\frac{s^2}{a})]$	$\frac{a^2}{2\pi^{\frac{1}{2}}}t^{\frac{3}{2}}J_{-\frac{3}{4}}(\frac{at^2}{4})$		$a>0$ Re $s>0$
	4	$s^{\frac{3}{2}}[H_{-\frac{3}{4}}(\frac{s^2}{a})-Y_{-\frac{3}{4}}(\frac{s^2}{a})]$	$-\frac{a^2}{2\pi^{\frac{1}{2}}}t^{\frac{3}{2}}J_{-\frac{1}{4}}(\frac{at^2}{4})$		$a>0$ Re $s>0$
25.12	1	$I_0(as)-L_0(as)$	$\frac{2}{\pi(a^2-t^2)^{\frac{1}{2}}}$ 0	$0<t<a$ $t>a$	$a>0$ Re $s>-\infty$
	2	$\frac{1}{s}[I_0(as)-L_0(as)]$	$\frac{2}{\pi}\sin^{-1}\frac{t}{a}$ 0	$0<t<a$ $t>a$	$a>0$ Re $s>-\infty$
	3	$\frac{\pi}{2}[L_1(as)-I_1(as)]+1$	$\frac{t}{a(a^2-t^2)^{\frac{1}{2}}}$ 0	$0<t<a$ $t>a$	$a>0$ Re $s>-\infty$
25.12.1	1	$\frac{1}{s^2}[L_0(as)-I_0(as)+as\,L_1(as)-as\,I_1(as)]+\frac{2a}{\pi s}$	$\frac{2}{\pi}t\sin^{-1}\frac{t}{a}$ 0	$0<t<a$ $t>a$	Re $s>-\infty$
25.12.2	1	$\frac{1}{s^{\frac{1}{2}}}[I_0(as^{\frac{1}{2}})-L_0(as^{\frac{1}{2}})]$	$\frac{e^{-\frac{a^2}{8t}}I_0(\frac{a^2}{8t})}{(\pi t)^{\frac{1}{2}}}$		Re $a>0$ Re $s>0$
	2	$\frac{1}{s^{\frac{1}{2}}}[I_{\frac{1}{2}}(as^{\frac{1}{2}})-L_{\frac{1}{2}}(as^{\frac{1}{2}})]$	$\frac{e^{-\frac{a^2}{8t}}}{a(2\pi t)^{\frac{1}{2}}}[I_{\frac{1}{4}}(\frac{a^2}{8t})-I_{-\frac{1}{4}}(\frac{a^2}{8t})]+\frac{\Gamma(\frac{1}{4})}{a^{\frac{1}{2}}\pi^{\frac{3}{2}}t^{\frac{1}{4}}}$		Re $s>0$

		$g(s)$	$f(t)$	
25.12.2 (Contd.)	3	$\frac{1}{s^{\nu}}[I_{\nu}(as)-L_{\nu}(as)]$	$\frac{(a^2-t^2)^{\nu-\frac{1}{2}}}{2^{\nu-1}\pi^{\frac{1}{2}}a^{\nu}\Gamma(\nu+\frac{1}{2})}$ $\quad 0<t<a$ $0 \quad t>a$	$\mathrm{Re}\,\nu>-\frac{1}{2}$ $a>0$ $\mathrm{Re}\,s>-\infty$
	4	$s^{\nu-1}[I_{\nu}(\frac{a}{s})-L_{\nu}(\frac{a}{s})]$	$\frac{1}{\pi^{\frac{1}{2}}}(\frac{2}{t})^{\nu}S_2(\frac{\nu}{2},\frac{\nu-1}{2},\frac{-\nu-1}{2},\frac{\nu-1}{2};\frac{at}{4})$	$\mathrm{Re}\,s>0$
	5	$s^{\nu}[I_{-\nu}(\frac{a}{s})-L_{\nu}(\frac{a}{s})]$	$\frac{\cos(\nu\pi)}{\pi^{\frac{1}{2}}}(\frac{2}{t})^{\nu+1}S_2(\frac{\nu}{2},\frac{-\nu-1}{2},\frac{\nu-1}{2},\frac{\nu+1}{2};\frac{at}{4})$	$\mathrm{Re}\,\nu<0$ $\mathrm{Re}\,s>0$
	6	$s^{\nu-1}[I_{-\nu}(\frac{a}{s})-L_{\nu}(\frac{a}{s})]$	$\frac{\cos(\nu\pi)}{\pi^{\frac{1}{2}}}(\frac{2}{t})^{\nu}S_2(\frac{\nu}{2},\frac{-\nu-1}{2},\frac{\nu-1}{2},\frac{\nu-1}{2};\frac{at}{4})$	$\mathrm{Re}\,\nu<1$ $\mathrm{Re}\,s>0$
	7	$\frac{1}{s^{\frac{\nu}{2}}}[L_{-\nu}(as^{\frac{1}{2}})-I_{\nu}(as^{\frac{1}{2}})]$	$\frac{i\,2^{\nu}\cos(\nu\pi)}{\pi a^{\nu}}t^{\nu-1}e^{\frac{a^2}{4t}}\,\mathrm{Erf}\left(\frac{ia}{2t^{\frac{1}{2}}}\right)$	$\mathrm{Re}\,\nu>-\frac{1}{2}$ $\mathrm{Re}\,s>0$
25.12.7.2	1	$\frac{1}{s^{\nu}}\,\mathrm{cosech}\,\frac{s}{2}[I_{\nu}(s)-L_{\nu}(s)]$	$0 \quad 0<t<\frac{1}{2}$ $\frac{4[\frac{3}{4}+t-n-(t-n)^2]^{\nu-\frac{1}{2}}}{\pi^{\frac{1}{2}}\Gamma(\nu+\frac{1}{2})}$ $\quad n+\frac{1}{2}<t<n+\frac{3}{2}$	$\mathrm{Re}\,\nu>-\frac{1}{2}$ $\mathrm{Re}\,s>0$ $n=0,1,2,\ldots$
25.21.3.1	1	$\Gamma(s+\frac{1}{2})(\frac{2}{a})^{s}H_s(a)$	$\frac{\sin[a(1-e^{-t})^{\frac{1}{2}}]}{\pi^{\frac{1}{2}}(e^{t}-1)^{\frac{1}{2}}}$	$\mathrm{Re}\,s>-\frac{1}{2}$
	2	$\Gamma(s+\frac{1}{2})(\frac{2}{a})^{s}L_s(a)$	$\frac{\sinh[a(1-e^{-t})^{\frac{1}{2}}]}{\pi^{\frac{1}{2}}(e^{t}-1)^{\frac{1}{2}}}$	$\mathrm{Re}\,s>-\frac{1}{2}$
25.21.12.3.1	1	$\Gamma(\frac{1}{2}-s)(\frac{a}{2})^{s}[I_s(a)-L_{-s}(a)]$	$\frac{\sin[a(e^{t}-1)^{\frac{1}{2}}]}{\pi^{\frac{1}{2}}(1-e^{-t})^{\frac{1}{2}}}$	$a>0$ $\mathrm{Re}\,s>-\frac{1}{2}$

		$g(s)$	$f(t)$	
26.10	1	$E_{\nu}(\frac{s}{a})+Y_{\nu}(\frac{s}{a})$	$-\frac{a}{(a^2t^2+1)^{\frac{1}{2}}}\left\{\left[(a^2t^2+1)^{\frac{1}{2}}+at\right]^{\nu}\right.$ $\left.+\cos(\nu\pi)\left[(a^2t^2+1)^{\frac{1}{2}}-at\right]^{\nu}\right\}$	$\mathrm{Re}\,s>0$
	2	$J_{\nu}(s)-J_{\nu}(s)$	$\frac{\sin(\nu\pi)}{\pi}\,\frac{e^{-\nu\sinh^{-1}t}}{(1+t^2)^{\frac{1}{2}}}$ $=\frac{\sin(\nu\pi)}{\pi}\,\frac{[(t^2+1)^{\frac{1}{2}}-t]^{\nu}}{(1+t^2)^{\frac{1}{2}}}$	$\mathrm{Re}\,s>0$
26.10.5	1	$\mathrm{cosec}(\pi s)[J_s(a)-J_s(a)]$	$\frac{1}{\pi}e^{-a\sinh t}$	$\mathrm{Re}\,a\geq 0$ $\mathrm{Re}\,s>-\infty$
26.10.9	1	$S_n(s)-\pi E_n(s)-\pi Y_n(s)$	$\frac{2e^{n\sinh^{-1}t}}{(1+t^2)^{\frac{1}{2}}}$ $=\frac{2[t+(1+t^2)^{\frac{1}{2}}]^{n}}{(1+t^2)^{\frac{1}{2}}}$	$n=0,1,2,\ldots$ $\mathrm{Re}\,s>0$
	2	$S_n(s)+\pi E_n(s)+\pi Y_n(s)$	$\frac{2(-1)^{n+1}e^{-n\sinh^{-1}t}}{(1+t^2)^{\frac{1}{2}}}$ $=\frac{2(-1)^{n+1}[(1+t^2)^{\frac{1}{2}}-t]^{n}}{(1+t^2)^{\frac{1}{2}}}$	$n=0,1,2,\ldots$ $\mathrm{Re}\,s>0$
27	1	$D_{-1}\left[(\frac{i}{2})^{\frac{1}{2}}s\right]D_{-1}\left[\frac{s}{(2i)^{\frac{1}{2}}}\right]$	$\frac{2\sin t^2}{t}$	$\mathrm{Re}\,s>0$
	2	$D_{-\nu}(s)\,D_{-\nu}(-s)$	$\frac{(-1)^{\nu-1}\pi^{\frac{1}{2}}}{\Gamma(\nu)}I_{\nu-\frac{1}{2}}(\frac{t^2}{2})$	$\mathrm{Re}\,\nu>0$ $\mathrm{Re}\,s>0$

		$g(s)$	$f(t)$	
27 (Contd.)	3	$D_{-\nu}\left(\frac{s}{a}e^{\frac{\pi i}{4}}\right)D_{-\nu}\left(\frac{s}{a}e^{-\frac{\pi i}{4}}\right)$	$\frac{\pi^{\frac{1}{2}}a}{\Gamma(\nu)}J_{\nu-\frac{1}{2}}\left(\frac{a^2t^2}{2}\right)$	Re $\nu > 0$ Re $s > 0$
27.2	1	$D_\nu[(2is)^{\frac{1}{2}}]\,D_\nu[(-2is)^{\frac{1}{2}}]$	$\frac{[1+(t^2+1)^{\frac{1}{2}}]^{\nu+\frac{1}{2}}}{2^{\frac{1}{2}}\Gamma(-\nu)t^{\nu+1}(t^2+1)^{\frac{1}{2}}}$	Re $\nu < 0$ Re $s > 0$
	2	$D_{-\nu}(2^{\frac{1}{2}}s^{\frac{1}{2}}e^{\frac{\pi i}{4}})\,D_{-\nu}(2^{\frac{1}{2}}s^{\frac{1}{2}}e^{-\frac{\pi i}{4}})$	$\frac{t^{\nu-1}[1+(1+t^2)^{\frac{1}{2}}]^{\frac{1}{2}-\nu}}{2^{\frac{1}{2}}\Gamma(\nu)(1+t^2)^{\frac{1}{2}}}$	Re $\nu > 0$ Re $s > 0$
	3	$\frac{1}{s^{\frac{1}{2}}}D_{-\nu}(as^{\frac{1}{2}})$	$0 \quad 0 < t < \frac{a^2}{4}$ $\frac{(t-\frac{a^2}{4})^{\frac{\nu-1}{2}}}{2^{\frac{\nu}{2}}\Gamma(\frac{\nu+1}{2})(t+\frac{a^2}{4})^{\frac{\nu}{2}}} \quad t > \frac{a^2}{4}$	$a > 0$ Re $\nu > -1$ Re $s > 0$
	4	$D_{-\nu}(as^{\frac{1}{2}})$	$0 \quad 0 < t < \frac{a^2}{4}$ $\frac{a(t-\frac{a^2}{4})^{\frac{\nu}{2}-1}}{2^{\frac{\nu+1}{2}}\Gamma(\frac{\nu}{2})(t+\frac{a^2}{4})^{\frac{\nu+1}{2}}} \quad t > \frac{a^2}{4}$	Re $\nu > 0$ Re $a > 0$ Re $s > 0$
27.3.1	1	$\frac{1}{s}e^{\frac{a^2s^2}{4}}D_{-\nu}(as)$	$\frac{2^{\frac{\nu}{2}+1}}{\Gamma(\nu)}\gamma\left(\frac{\nu}{2},\frac{t^2}{2a^2}\right)$	Re $\nu > 0$ $\lvert\arg a\rvert < \frac{\pi}{4}$ Re $s > 0$
	2	$e^{\frac{a^2s^2}{4}}D_{-\nu}(as)$	$\frac{t^{\nu-1}e^{-\frac{t^2}{2a^2}}}{\Gamma(\nu)a^\nu}$	Re $s > \begin{cases} -\infty \text{ for } \lvert\arg a\rvert < \frac{\pi}{4}, \frac{3\pi}{4} < \arg a < \frac{5\pi}{4} \\ 0 \text{ for } \arg a = \frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4} \\ \infty \text{ otherwise} \end{cases}$ Re $\nu > 0$

		$g(s)$	$f(t)$	
27.3.1 (Contd.)	3	$s^n e^{\frac{s^2}{4}}D_{-n-1}(s)$	$\frac{d^n}{dt^n}\left(e^{-\frac{t^2}{2}}\frac{t^n}{n!}\right)$	$n = 0,1,2,\ldots$ Re $s > -\infty$
	4	$e^{\frac{s^2}{4a^2}}D_{-\mu}(\frac{s}{a})\,D_{-\nu}(\frac{s}{a})$	$\frac{a^{\mu+\nu}}{\Gamma(\mu+\nu)}t^{\mu+\nu-1}e^{-\frac{a^2t^2}{2}}\,{}_2F_2\left[\begin{matrix}\mu, & \nu & ; \frac{a^2t^2}{4}\\ \frac{\mu+\nu}{2}, & \frac{\mu+\nu+1}{2} & ; \end{matrix}\right]$	Re$(\mu+\nu) > 0$ Re $s > -\infty$
	5	$e^{\frac{a^2s^2}{4}}\left\{e^{\frac{ia^2bs}{2}}D_{-\nu}[a(s+ib)]-e^{-\frac{ia^2bs}{2}}\cdot D_{-\nu}[a(s-ib)]\right\}$	$\frac{-i2t^{\nu-1}}{\Gamma(\nu)a^\nu}e^{-\frac{t^2}{2a^2}+\frac{a^2b^2}{4}}\sin(bt)$	Re $a^2 > 0$ Re $\nu > -1$ Re $s > -\infty$
	6	$e^{\frac{a^2s^2}{4}}\left\{e^{-\frac{ia^2bs}{2}}D_{-\nu}[a(s-ib)] + e^{\frac{ia^2bs}{2}}D_{-\nu}[a(s+ib)]\right\}$	$\frac{2t^{\nu-1}}{\Gamma(\nu)a^\nu}e^{-\frac{t^2}{2a^2}+\frac{a^2b^2}{4}}\cos(bt)$	Re $a^2 > 0$ Re $\nu > 0$ Re $s > -\infty$
27.3.2	1	$e^{\frac{a^2s}{4}}D_{-\nu}(as^{\frac{1}{2}})$	$\frac{a t^{\frac{\nu}{2}-1}}{\Gamma(\frac{\nu}{2})(2t+a^2)^{\frac{\nu+1}{2}}}$	Re $\nu > 0$ Re $a > 0$ Re $s > 0$
	2	$\frac{1}{s^{\frac{1}{2}}}e^{\frac{a^2s}{4}}D_{-\nu}(as^{\frac{1}{2}})$	$\frac{t^{\frac{\nu-1}{2}}}{\Gamma(\frac{\nu+1}{2})(2t+a^2)^{\frac{\nu}{2}}}$	Re $\nu > -1$ Re $a > 0$ Re $s > 0$
	3	$\frac{e^{-\frac{1}{4s}}}{s^{n+\frac{1}{2}}}D_{2n}\left(\frac{1}{s^{\frac{1}{2}}}\right)$	$\frac{(-2t)^n\cos[(2t)^{\frac{1}{2}}]}{(\pi t)^{\frac{1}{2}}}$	$n = 0,1,2,\ldots$ Re $s > 0$
	4	$\frac{1}{s^\nu}e^{-\frac{a^2}{4s}}D_{2\nu-1}\left(\frac{a}{s^{\frac{1}{2}}}\right)$	$\frac{2^{\nu+\frac{1}{2}}t^{\nu-1}}{\pi^{\frac{1}{2}}}\sin(\nu\pi-2^{\frac{1}{2}}at^{\frac{1}{2}})$	Re $\nu > 0$ Re $s > 0$

		$g(s)$	$f(t)$	
27.3.2 (Contd.)	5	$\frac{1}{s^{\nu}} e^{\frac{a^2}{4s}} D_{-2\nu}\left(\frac{a}{s^{\frac{1}{2}}}\right)$	$\frac{(2t)^{\nu-1} e^{-2^{\frac{1}{2}} a t^{\frac{1}{2}}}}{\Gamma(2\nu)}$	$\mathrm{Re}\,\nu > 0$, $\mathrm{Re}\,s > 0$
	6	$e^{\frac{a^2}{4s}} \sum_{r=0}^{n-1} (-1)^r \binom{n-1}{r} \left(\frac{a^2}{s}\right)^{\frac{n+1-r}{2}} D_{-n+r-1}\left(\frac{a}{s^{\frac{1}{2}}}\right)$	$\frac{a}{(2t)^{\frac{1}{2}}} e^{-\frac{at^{\frac{1}{2}}}{2^{\frac{1}{2}}}} k_{2n}\left(\frac{at^{\frac{1}{2}}}{2^{\frac{1}{2}}}\right)$	$n = 1,2,3,\ldots$, $\mathrm{Re}\,s > 0$
	7	$\frac{1}{s^{\nu}} e^{\frac{a^2}{4s}} \left[D_{-2\nu}\left(-\frac{a}{s^{\frac{1}{2}}}\right) + D_{-2\nu}\left(\frac{a}{s^{\frac{1}{2}}}\right)\right]$	$\frac{2^{\nu} t^{\nu-1} \cosh(2^{\frac{1}{2}} a t^{\frac{1}{2}})}{\Gamma(2\nu)}$	$\mathrm{Re}\,\nu > 0$, $\mathrm{Re}\,s > 0$
	8	$\frac{1}{s^{\nu}} e^{\frac{a^2}{4s}} \left[D_{-2\nu}\left(-\frac{a}{s^{\frac{1}{2}}}\right) - D_{-2\nu}\left(\frac{a}{s^{\frac{1}{2}}}\right)\right]$	$\frac{2^{\nu} t^{\nu-1} \sinh(2^{\frac{1}{2}} a t^{\frac{1}{2}})}{\Gamma(2\nu)}$	$\mathrm{Re}\,\nu > -\frac{1}{2}$, $\mathrm{Re}\,s > 0$
	9	$\frac{1}{s^{\nu}} e^{-\frac{a^2}{4s}} \left[D_{2\nu-1}\left(\frac{a}{s^{\frac{1}{2}}}\right) + D_{2\nu-1}\left(-\frac{a}{s^{\frac{1}{2}}}\right)\right]$	$\frac{2^{\nu+\frac{1}{2}} \sin(\nu\pi)}{\pi^{\frac{1}{2}}} t^{\nu-1} \cos(2^{\frac{1}{2}} a t^{\frac{1}{2}})$	$\mathrm{Re}\,\nu > 0$, $\mathrm{Re}\,s > 0$
	10	$\frac{e^{-\frac{a^2}{4s}}}{s^{\nu}} \left[D_{2\nu-1}\left(-\frac{a}{s^{\frac{1}{2}}}\right) - D_{2\nu-1}\left(\frac{a}{s^{\frac{1}{2}}}\right)\right]$	$\frac{2^{\nu+\frac{1}{2}} \cos(\nu\pi)}{\pi^{\frac{1}{2}}} t^{\nu-1} \sin(2^{\frac{1}{2}} a t^{\frac{1}{2}})$	$\mathrm{Re}\,\nu > -\frac{1}{2}$, $\mathrm{Re}\,s > 0$
	11	$s^{\frac{\nu}{2}} e^{-\frac{1}{4s}} \left[D_{\nu}\left(\frac{1}{s^{\frac{1}{2}}}\right) + D_{\nu}\left(\frac{-1}{s^{\frac{1}{2}}}\right)\right]$	$\frac{\cos[(2t)^{\frac{1}{2}}]}{\Gamma(-\nu)\, t (2t)^{\frac{\nu}{2}}}$	$\mathrm{Re}\,\nu < 0$, $\mathrm{Re}\,s > 0$
	12	$e^{\frac{s}{2}} D_{\nu-\frac{1}{2}}(s^{\frac{1}{2}})\, D_{-\nu-\frac{1}{2}}(s^{\frac{1}{2}})$	$\frac{\cos(\nu \cos^{-1} \frac{1}{1+2t})}{[\pi t(t+1)(2t+1)]^{\frac{1}{2}}}$	$\mathrm{Re}\,s > 0$
	13	$\frac{1}{s^{\frac{1}{2}}} e^{\frac{a^2+b^2}{4} s} D_{\mu}(as^{\frac{1}{2}})\, D_{\nu}(bs^{\frac{1}{2}})$	$\frac{2^{\frac{\mu+\nu}{2}}}{\Gamma(\frac{1-\mu-\nu}{2}) t^{\frac{1}{2}}} \left(1+\frac{a^2}{2t}\right)^{\frac{\mu}{2}} \left(1+\frac{b^2}{2t}\right)^{\frac{\nu}{2}} \cdot {}_2F_1\left[\frac{\mu}{2}, -\frac{\nu}{2}; \frac{1-\mu-\nu}{2}; \frac{2t(a^2+b^2+2t)}{(a^2+2t)(b^2+2t)}\right]$	$\lvert\arg a^2\rvert < \frac{\pi}{2}$, $\lvert\arg b^2\rvert < \frac{\pi}{2}$, $\mathrm{Re}(\mu+\nu) < 2$, $\lvert\arg a^2 s\rvert < \frac{\pi}{2}$, $\lvert\arg b^2 s\rvert < \frac{\pi}{2}$, $\mathrm{Re}\,s > 0$

		$g(s)$	$f(t)$	
27.3.2.1	1	$\frac{e^{-\frac{1}{4s}}}{s^{n+1}} D_{2n+1}\left(\frac{1}{s^{\frac{1}{2}}}\right)$	$\left(\frac{2}{\pi}\right)^{\frac{1}{2}} (-2t)^n \sin[(2t)^{\frac{1}{2}}]$	$\mathrm{Re}\,s > 0$, $n = 0,1,2,\ldots$
27.21.3.1	1	$2^s\, \Gamma(s+\nu)\, D_{-2s}(a)$	$\frac{e^{\frac{t}{2}}}{2^{\nu}(e^t-1)^{\nu+\frac{1}{2}}} \exp\left[-\frac{a^2 e^{-t}}{4(1-e^{-t})}\right] D_{2\nu}\left[\frac{a}{(1-e^{-t})^{\frac{1}{2}}}\right]$	$\lvert\arg a\rvert < \frac{\pi}{4}$, $\mathrm{Re}\,s > -\mathrm{Re}\,\nu$
28	1	$S_{0,0}(s)$	$\frac{1}{(t^2+1)^{\frac{1}{2}}}$	$\mathrm{Re}\,s > 0$
	2	$S_{0,\nu}(s)$	$\frac{\cosh(\nu \sinh^{-1} t)}{(1+t^2)^{\frac{1}{2}}} = \frac{[(t^2+1)^{\frac{1}{2}}+t]^{\nu} + [(t^2+1)^{\frac{1}{2}}-t]^{\nu}}{2(t^2+1)^{\frac{1}{2}}}$	$\mathrm{Re}\,s > 0$
	3	$\frac{1}{s} S_{0,\nu}(s)$	$\frac{1}{\nu} \sinh(\nu \sinh^{-1} t) = \frac{1}{2\nu}\left[[(t^2+1)^{\frac{1}{2}}+t]^{\nu} - [(t^2+1)^{\frac{1}{2}}-t]^{\nu}\right]$	$\mathrm{Re}\,s > 0$
	4	$S_{-1,\nu}(s)$	$\frac{\sinh(\nu \sinh^{-1} t)}{\nu(1+t^2)^{\frac{1}{2}}} = \frac{[(t^2+1)^{\frac{1}{2}}+t]^{\nu} - [(t^2+1)^{\frac{1}{2}}-t]^{\nu}}{2\nu(t^2+1)^{\frac{1}{2}}}$	$\mathrm{Re}\,s > 0$
	5	$\frac{1}{s} S_{1,\nu}(s)$	$\cosh(\nu \sinh^{-1} t) = \frac{1}{2}\left[[(t^2+1)^{\frac{1}{2}}+t]^{\nu} + [(t^2+1)^{\frac{1}{2}}-t]^{\nu}\right]$	$\mathrm{Re}\,s > 0$

		$g(s)$	$f(t)$	
28 (Contd.)	6	$\frac{1}{s} S_{2,\nu}(s) - 1$	$(\nu - \frac{1}{\nu}) \sinh(\nu \sinh^{-1} t)$ $= \frac{1}{2}(\nu - \frac{1}{\nu}) \left[[(t^2+1)^{\frac{1}{2}} + t]^{\nu} - [(t^2+1)^{\frac{1}{2}} - t]^{\nu} \right]$	$Re\, s > 0$
	7	$S_{0,\nu}(s) - \nu S_{-1,\nu}(s)$	$\frac{[(t^2+1)^{\frac{1}{2}} - t]^{\nu}}{(t^2+1)^{\frac{1}{2}}}$	$Re\, s > 0$
	8	$\frac{1}{s}[S_{1,\nu}(s) + \nu S_{0,\nu}(s)]$	$[(t^2+1)^{\frac{1}{2}} + t]^{\nu}$	$Re\, s > 0$
	9	$\frac{1}{s}[S_{1,\nu}(s) - \nu S_{0,\nu}(s)]$	$[(t^2+1)^{\frac{1}{2}} - t]^{\nu}$	$Re\, s > 0$
	10	$V_{\nu}(2s,0)$	$\frac{t^{\nu-1} \sin(\nu\pi)}{\pi(1+t^2)}$	$Re\, \nu > 0$ $Re\, s > 0$
28.1	1	$\frac{1}{s^2} S_{2,0}(s)$	$(1+t^2)^{\frac{1}{2}} - t \sinh^{-1} t$	$Re\, s > 0$
	2	$\frac{1}{s^2} S_{2,\nu}(s)$	$1 + (\nu - \frac{1}{\nu}) \int_0^t \sinh(\nu \sinh^{-1} u)\, du$	$Re\, s > 0$
28.2	1	$\frac{1}{s^{\frac{\nu}{2}}} S_{\mu,\nu}(as^{\frac{1}{2}})$	$\frac{2^{\mu+\nu-1} t^{\nu-1}}{a^{\nu} \Gamma(\frac{\nu-\mu+1}{2})} e^{\frac{a^2}{4t}} \Gamma\left(\frac{\mu+\nu+1}{2}, \frac{a^2}{4t}\right)$	$Re(\mu-\nu) < 1$ $\lvert \arg a^2 \rvert < \pi$ $Re\, s > 0$
	2	$\frac{S_{\mu,\nu}(as^{\frac{1}{2}})}{s^{\frac{\mu+1}{2}}}$	$2^{\mu} a^{-1} t^{\frac{\mu}{2}} e^{\frac{a^2}{8t}} W_{\frac{\mu}{2},\frac{\nu}{2}}\left(\frac{a^2}{4t}\right)$	$Re(\mu \pm \nu) > -1$ $\lvert \arg a \rvert < \frac{\pi}{2}$ $Re\, s > 0$
	3	$s^b S_{\mu,\nu}(as)$	$\frac{a^{\mu-1}}{\Gamma(1-b-\mu) t^{b+\mu}} {}_3F_2 \left[\begin{matrix} 1, \frac{1-\mu+\nu}{2}, \frac{1-\mu-\nu}{2}; \\ \frac{1-b-\mu}{2}, \frac{2-b-\mu}{2}; \end{matrix} -\frac{t^2}{a^2} \right]$	$Re\, a > 0$ $Re(b+\mu) < 1$ $Re\, s > 0$

		$g(s)$	$f(t)$	
28.2.1	1	$s^{\frac{1}{2}} S_{\mu,\frac{1}{4}}(\frac{s^2}{a})$	$\frac{a t^{\frac{1}{2}}}{2^{2\mu+2} \Gamma(-2\mu - \frac{1}{2})} s_{-\mu-1,\frac{1}{4}}\left(\frac{at^2}{4}\right)$	$Re\, \mu < -\frac{1}{4}$ $Re\, s > 0$
28.3.1	1	$\frac{s_{\nu+s-1,s-\nu}(a)}{a^s}$	$\frac{2^{\nu}\Gamma(\nu) J_{\nu}[a(1-e^{-t})^{\frac{1}{2}}]}{(1-e^{-t})^{\frac{\nu}{2}}}$	$Re\, s > 0$
28.21.3	1	$\frac{\Gamma(s)}{a^s} U_s(2a,0)$	$\cos[a(1-e^{-t})]$	$Re\, s > 0$
28.21.3.1	1	$\frac{\Gamma(s)}{a^s} U_{s+1}(2a,0)$	$\sin[a(1-e^{-t})]$	$Re\, s > 0$
	2	$\frac{\Gamma(s)}{a^s}[U_s(2a,0)\cos a + U_{s+1}(2a,0)\sin a]$	$\cos(ae^{-t})$	$Re\, s > 0$
	3	$\frac{\Gamma(s)}{a^s}[U_s(2a,0)\sin a - U_{s+1}(2a,0)\cos a]$	$\sin(ae^{-t})$	$Re\, s > 0$
30	1	$\frac{1}{s} {}_1F_1[\frac{1}{2}; 1; -\frac{1}{s}]$	$J_0^2(t^{\frac{1}{2}})$	$Re\, s > 0$
	2	$\frac{1}{s} {}_1F_1[1; n; \frac{1}{s}]$	${}_0F_1[\ ; n; t]$	$n = 1, 2, 3, \ldots$ $Re\, s > 0$
	3	${}_1F_1[a; c; -s]$	$\frac{\Gamma(c) t^{a-1}(1-t)^{c-a-1}}{\Gamma(a)\Gamma(c-a)}$ $0 < t < 1$; 0 $t > 1$	$Re\, c > Re\, a > 0$ $Re\, s > -\infty$
	4	$\Phi_1(a, c, a+b; h, -s)$	$\frac{t^{a-1}(1-t)^{b-1}}{B(a,b)(1-ht)^c}$ $0 < t < 1$; 0 $t > 1$	$Re\, a > 0$ $Re\, b > 0$ $\lvert \arg(1-h) \rvert < \pi$ $Re\, s > -\infty$

		$g(s)$	$f(t)$	
30 (Contd.)	5	$\frac{1}{s}W_{\mu,\nu}(s)$	$0 \qquad 0<t<\frac{1}{2}$ $\left(\frac{2t+1}{2t-1}\right)^{\frac{\mu}{2}} P^{\mu}_{\nu-\frac{1}{2}}(2t) \qquad t>\frac{1}{2}$	$\operatorname{Re}\mu>1$ $\nu-\frac{1}{2}\neq 0,\pm1,\pm2,\ldots$ $\operatorname{Re}s>0$
30.2	1	$\frac{1}{s^{\nu+1}}\,{}_1F_1[\nu+\frac{1}{2};2\nu+1;-\frac{1}{s}]$	$4^{\nu}\Gamma(\nu+1)\,J^2_{\nu}(t^{\frac{1}{2}})$	$\operatorname{Re}\nu>-1$ $\operatorname{Re}s>0$
	2	$\frac{1}{s^{\mu}}\,{}_1F_1[\mu;\nu;-\frac{a}{s}]$	$\frac{\Gamma(\nu)}{\Gamma(\mu)a^{\frac{\nu-1}{2}}}\,t^{\frac{2\mu-\nu-1}{2}}\,J_{\nu-1}(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	$\operatorname{Re}\mu>0$ $\operatorname{Re}s>0$
	3	$s^{\frac{1}{2}}M_{\frac{1}{4},\nu}(\frac{a}{s})M_{-\frac{1}{4},\nu}(\frac{a}{s})$	$\frac{2^{2\nu}a}{t^{\frac{1}{2}}}\frac{[\Gamma(2\nu+1)]^2}{\Gamma(2\nu+\frac{1}{2})}J_{2\nu}[(2at)^{\frac{1}{2}}e^{\frac{i\pi}{4}}]\,J_{2\nu}[(2at)^{\frac{1}{2}}e^{-\frac{i\pi}{4}}]$	$\operatorname{Re}\nu>-\frac{1}{4}$ $\operatorname{Re}s>0$
	4	$\frac{1}{s^{\nu+\frac{1}{2}}}W_{\mu,\nu}(\frac{s}{a})$	$0 \qquad 0<t<\frac{1}{2a}$ $\frac{a^{\frac{1}{2}-\nu}(at-\frac{1}{2})^{\nu-\mu-\frac{1}{2}}}{\Gamma(\nu+\frac{1}{2}-\mu)(at+\frac{1}{2})^{\frac{1}{2}-\nu-\mu}} \qquad t>\frac{1}{2a}$	$\operatorname{Re}(\nu-\mu)>\frac{1}{2}$ $\operatorname{Re}s>0$
	5	$s^{\frac{1}{2}}W_{\frac{1}{4},\nu}\left(\frac{ia}{s}\right)W_{\frac{1}{4},\nu}\left(-\frac{ia}{s}\right)$	$-\frac{4a\pi^{\frac{1}{2}}K_{2\nu}[(2at)^{\frac{1}{2}}]}{(2t)^{\frac{1}{2}}\Gamma(\frac{1}{4}+\nu)\Gamma(\frac{1}{4}-\nu)}\Big\{\sin[(\nu-\frac{1}{4})\pi]\cdot J_{2\nu}[(2at)^{\frac{1}{2}}]+\cos[(\nu-\frac{1}{4})\pi]Y_{2\nu}[(2at)^{\frac{1}{2}}]\Big\}$	$\lvert\operatorname{Re}\nu\rvert<\frac{1}{4}$ $\operatorname{Re}s>0$
	6	$\frac{1}{s^b}W_{\mu,\nu}(ias)W_{\mu,\nu}(-ias)$	$\frac{a^{2\mu}t^{b-2\mu-1}}{\Gamma(b-2\mu)}\,{}_4F_3\left[\begin{matrix}\frac{1}{2}-\mu+\nu,\frac{1}{2}-\mu-\nu,\frac{1}{2}-\mu,1-\mu; \\ 1-2\mu,\ \frac{b}{2}-\mu,\ \frac{b+1}{2}-\mu\ ;\end{matrix}\ -\frac{t^2}{a^2}\right]$	$\operatorname{Re}a>0$ $\operatorname{Re}(\frac{b}{2}-\mu)>0$ $\operatorname{Re}s>0$
	7	$\frac{1}{s^a}\Phi_1(a,b,c;\frac{x}{s},\frac{y}{s})$	$\frac{t^{a-1}}{\Gamma(a)}\Phi_3(b,c;xt,yt)$	$\operatorname{Re}a>0$ $\operatorname{Re}x>0$ $\operatorname{Re}s>0$

		$g(s)$	$f(t)$	
30.2 (Contd.)	8	$\frac{1}{s^a}\Phi_2(b,a,c;x,\frac{y}{s})$	$\frac{t^{a-1}}{\Gamma(a)}\Phi_3(b,c;x,yt)$	$\operatorname{Re}a>0$ $\operatorname{Re}s>\operatorname{Max}0,\operatorname{Re}y$
	9	$\frac{1}{s^b}\Psi_1(a,b,c,d;\frac{x}{s},y)$	$\frac{t^{b-1}}{\Gamma(b)}\Psi_2(a,c,d;xt,y)$	$\operatorname{Re}b>0$ $\operatorname{Re}s>\operatorname{Max}0,\operatorname{Re}x$
	10	$\frac{1}{s^{\mu+\nu}}\Psi_2\left(\nu+\mu;2\mu_1+1,\ldots,2\mu_n+1;\frac{a_1}{s},\ldots,\frac{a_n}{s}\right)$	$\frac{t^{\nu-1}}{\Gamma(\nu+\mu)}\prod_{r=1}^{n}\left[\frac{\Gamma(2\mu_r+1)}{a_r^{\mu_r}}J_{2\mu_r}(2a_r^{\frac{1}{2}}t^{\frac{1}{2}})\right]$	$\mu=\sum_{r=1}^{n}\mu_r$ $\operatorname{Re}(\nu+\mu)>0$ $\operatorname{Re}s>0$
	11	$\frac{1}{s^b}\Xi_1(a,b,c,d;x,\frac{y}{s})$	$\frac{t^{b-1}}{\Gamma(b)}\Xi_2(a,c,d;x,yt)$	$\operatorname{Re}b>0$ $\operatorname{Re}s>\operatorname{Max}0,\operatorname{Re}y$
	12	$\frac{1}{s^d}\Xi_1(a,b,d,c;\frac{x}{s},y)$	$\frac{t^{d-1}}{\Gamma(d)}\Phi_2(a,b,c;xt,y)$	$\operatorname{Re}d>0$ $\operatorname{Re}s>\operatorname{Max}0,\operatorname{Re}x$
	13	$\frac{1}{s^a}\Xi_2(a,b,c;\frac{x}{s},y)$	$\frac{t^{a-1}}{\Gamma(a)}\Phi_3(b,c;xt,y)$	$\operatorname{Re}a>0$ $\operatorname{Re}s>\operatorname{Max}0,\operatorname{Re}x$
30.2.1	1	$\frac{1}{s^{2\nu+2}}\,{}_1F_1[\nu+\frac{1}{2};2\nu+1;-\frac{1}{s^2}]$	$\frac{2t^{2\nu}}{\Gamma(2\nu+1)\Gamma(\nu+1)}\,{}_0F_2\left[\begin{matrix}; \\ 2\nu+1,\nu+1;\end{matrix}\ -\frac{t^2}{4}\right]$	$\operatorname{Re}\nu>-1$ $\operatorname{Re}s>0$
	2	$\frac{1}{s^{2a}}\Xi_1(a,b,a+\frac{1}{2},c;\frac{4y}{s^2},x)$	$\frac{t^{2a-1}}{\Gamma(2a)}\Phi_3(b,c;x,yt^2)$	$\operatorname{Re}a>0$ $\operatorname{Re}s>2\lvert\operatorname{Re}y^{\frac{1}{2}}\rvert$
	3	$\frac{1}{s^{\frac{3}{2}}}W_{-\nu,\frac{1}{4}}\left(\frac{e^{\frac{\pi i}{2}}s^2}{a}\right)W_{-\nu,\frac{1}{4}}\left(\frac{e^{-\frac{\pi i}{2}}s^2}{a}\right)$	$\frac{\pi^{\frac{1}{2}}}{2^{\frac{1}{2}}\Gamma(\nu+\frac{3}{8})\Gamma(\nu+\frac{5}{8})}t^{\frac{1}{2}}J_{\nu+\frac{1}{4}}(\frac{at^2}{8})J_{\nu-\frac{1}{4}}(\frac{at^2}{8})$	$\operatorname{Re}\nu>-\frac{3}{8}$ $a>0$ $\operatorname{Re}s>0$

		$g(s)$	$f(t)$	
30.3	1	$\frac{1}{s}e^{\frac{as}{2}}W_{\nu,\mu}(as)$	$(1+\frac{a}{t})^{\frac{\nu}{2}}P^{\nu}_{\mu-\frac{1}{2}}(1+\frac{2t}{a})$	$\lvert\arg a\rvert<\pi$ $\mathrm{Re}\,\nu<1$ $\mathrm{Re}\,s>0$
	2	$\frac{1}{s}e^{\frac{s}{a}}W_{\nu,0}(\frac{s}{a})\,W_{-\nu,0}(\frac{s}{a})$	$\dfrac{P_{\nu-\frac{1}{2}}\left[\frac{2}{(1+at)^2}-1\right]}{1+at}$	$\mathrm{Re}\,s>0$
	3	$\frac{1}{s}e^{\frac{a+b}{2}s}W_{\mu,\nu}(as)\,W_{\lambda,\nu}(bs)$	$\frac{(ab)^{\nu+\frac{1}{2}}}{\Gamma(1-\mu-\lambda)}\frac{(a+t)^{\mu-\nu-\frac{1}{2}}(b+t)^{\lambda-\nu-\frac{1}{2}}}{t^{\mu+\lambda}}\cdot$ ${}_2F_1\left[\nu+\frac{1}{2}-\mu,\nu+\frac{1}{2}-\lambda;1-\mu-\lambda;\frac{t(a+b+t)}{(a+t)(b+t)}\right]$	$\mathrm{Re}(1-\mu-\lambda)>0$ $\lvert\arg a\rvert<\pi$ $\lvert\arg b\rvert<\pi$ $\lvert\arg as\rvert<\pi$ $\lvert\arg bs\rvert<\pi$ $\mathrm{Re}\,s>0$
30.3.1	1	$\frac{1}{s^n}e^{-\frac{a}{s}}k_{2n}(\frac{a}{s})$	$\frac{(-1)^{n-1}(2a)^{\frac{1}{2}}}{n!}t^{n-\frac{1}{2}}J_1[(8at)^{\frac{1}{2}}]$	$n=0,1,2,\ldots$ $\mathrm{Re}\,s>0$
	2	$a^{\frac{s}{2}}W_{\mu-\frac{s}{2},\nu+\frac{s}{2}}(a)$	$\dfrac{\exp[-(\frac{1}{2}-\nu+\mu)t-a(e^t-\frac{1}{2})]}{a^{\nu-\frac{1}{2}}\Gamma(\frac{1}{2}-\nu-\mu)(e^t-1)^{\frac{1}{2}+\mu+\nu}}$	$\mathrm{Re}(\mu+\nu)<\frac{1}{2}$ $\mathrm{Re}\,a>0$ $\mathrm{Re}\,s>-\infty$
	3	$a^{\frac{s}{2}}W_{\frac{1-s-2\nu}{2},\frac{s}{2}}(a)$	$\frac{a^{\frac{1}{2}}e^{\frac{a}{2}}}{\Gamma(\nu)}(1-e^{-t})^{\nu-1}\exp(-ae^t)$	$\mathrm{Re}\,a>0$ $\mathrm{Re}\,\nu>0$ $\mathrm{Re}\,s>-\infty$
30.3.2	1	$\frac{e^{-\frac{1}{s}}}{s^{\nu+1}}{}_1F_1[-\nu;1;\frac{1}{s}]$	$\frac{t^{\nu}}{\Gamma(\nu+1)}J_0(2t^{\frac{1}{2}})$	$\mathrm{Re}\,\nu>-1$ $\mathrm{Re}\,s>0$
	2	$\frac{e^{-\frac{1}{s}}}{s^{\nu-\mu}}{}_1F_1[\mu;\nu;\frac{1}{s}]$	$\frac{\Gamma(\nu)}{\Gamma(\nu-\mu)}t^{\frac{\nu-1}{2}-\mu}J_{\nu-1}(2t^{\frac{1}{2}})$	$\mathrm{Re}\,\nu>\mathrm{Re}\,\mu$ $\mathrm{Re}\,s>0$
	3	$\frac{1}{s^n}e^{-\frac{a}{s}}k_{2n}(\frac{a}{s})$	$\frac{(-1)^{n-1}(2a)^{\frac{1}{2}}t^{n-\frac{1}{2}}}{n!}J_1[(8at)^{\frac{1}{2}}]$	$n=0,1,2,\ldots$ $\mathrm{Re}\,s>0$

		$g(s)$	$f(t)$		
30.3.2 (Contd.)	4	$\frac{1}{s^{\nu}}e^{-\frac{a}{s}}k_{-2\nu}\left(\frac{ae^{i\pi}}{s}\right)$	$-\frac{i\sin(\nu\pi)}{\Gamma(\nu+1)}t^{\nu-\frac{1}{2}}H_1^{(2)}[(8at)^{\frac{1}{2}}]$		$\mathrm{Re}\,\nu>0$ $\mathrm{Re}\,s>0$
	5	$\frac{1}{s^{\nu}}e^{-\frac{a}{s}}k_{-2\nu}\left(\frac{ae^{-i\pi}}{s}\right)$	$\frac{i\sin(\nu\pi)}{\Gamma(\nu+1)}t^{\nu-\frac{1}{2}}H_1^{(1)}[(8at)^{\frac{1}{2}}]$		$\mathrm{Re}\,\nu>0$ $\mathrm{Re}\,s>0$
	6	$\frac{1}{s^{\frac{1}{2}}}e^{-\frac{1}{2s}}M_{0,0}(\frac{1}{s})$	$J_0^2(t^{\frac{1}{2}})$		$\mathrm{Re}\,s>0$
	7	$\frac{1}{s^{\mu}}e^{-\frac{a}{2s}}M_{\mu,\nu}(\frac{a}{s})$	$\frac{a^{\frac{1}{2}}\Gamma(2\nu+1)}{\Gamma(\mu+\nu+\frac{1}{2})}t^{\mu-\frac{1}{2}}J_{2\nu}(2a^{\frac{1}{2}}t^{\frac{1}{2}})$		$\mathrm{Re}(\mu+\nu)>-\frac{1}{2}$ $\mathrm{Re}\,s>0$
	8	$\frac{1}{s^{\mu}}e^{\frac{a}{2s}}M_{-\mu,\nu}(\frac{a}{s})$	$\frac{a^{\frac{1}{2}}\Gamma(2\nu+1)}{\Gamma(\mu+\nu+\frac{1}{2})}t^{\mu-\frac{1}{2}}I_{2\nu}(2a^{\frac{1}{2}}t^{\frac{1}{2}})$		$\mathrm{Re}(\mu+\nu)>-\frac{1}{2}$ $\mathrm{Re}\,s>0$
	9	$\frac{1}{s^{\mu+\nu}}e^{-\frac{(a+b)s}{2}}M_{\mu-\nu,\mu+\nu-\frac{1}{2}}[(b-a)s]$	0 $\dfrac{(t-a)^{2\mu-1}(b-t)^{2\nu-1}}{B(2\mu,2\nu)(b-a)^{\mu+\nu-1}}$ 0	$0<t<a$ $a<t<b$ $t>b$	$b>a>0$ $\mathrm{Re}\,\mu>0$ $\mathrm{Re}\,\nu>0$ $\mathrm{Re}\,s>-\infty$
	10	$\dfrac{e^{\frac{a}{2s}}W_{-\nu,\nu}(\frac{a}{s})}{s^{2\nu+\frac{1}{2}}}$	$\dfrac{2t^{2\nu}K_{2\nu}(a^{\frac{1}{2}}t^{\frac{1}{2}})I_{2\nu}(a^{\frac{1}{2}}t^{\frac{1}{2}})}{\Gamma(2\nu+\frac{1}{2})a^{\nu-\frac{1}{2}}}$		$\mathrm{Re}\,\nu>-\frac{1}{4}$ $\mathrm{Re}\,s>0$
	11	$\frac{1}{s^{\mu}}e^{\frac{a}{2s}}W_{-\mu,\nu}(\frac{a}{s})$	$\dfrac{2a^{\frac{1}{2}}t^{\mu-\frac{1}{2}}}{\Gamma(\mu+\nu+\frac{1}{2})\Gamma(\mu-\nu+\frac{1}{2})}K_{2\nu}(2a^{\frac{1}{2}}t^{\frac{1}{2}})$		$\mathrm{Re}(\mu\pm\nu)>-\frac{1}{2}$ $\mathrm{Re}\,s>0$
	12	$\frac{1}{s^{\mu}}e^{-\frac{a}{s}}W_{-\mu,\nu}\left(\frac{2ae^{i\pi}}{s}\right)$	$\dfrac{\pi(2a)^{\frac{1}{2}}e^{-\nu\pi i}}{\Gamma(\mu+\nu+\frac{1}{2})\Gamma(\mu-\nu+\frac{1}{2})}t^{\mu-\frac{1}{2}}H_{2\nu}^{(2)}[(8at)^{\frac{1}{2}}]$		$\mathrm{Re}(\mu\pm\nu)>-\frac{1}{2}$ $\mathrm{Re}\,s>0$

		g(s)	f(t)	
30.3.2 (Contd.)	13	$\frac{1}{s^{\mu}} e^{-\frac{a}{s}} W_{-\mu,\nu}\left(\frac{2ae^{-i\pi}}{s}\right)$	$\frac{\pi(2a)^{\frac{1}{2}} e^{\nu\pi i}}{\Gamma(\mu+\nu+\frac{1}{2})\Gamma(\mu-\nu+\frac{1}{2})} t^{\mu-\frac{1}{2}} H^{(1)}_{2\nu}[(8at)^{\frac{1}{2}}]$	$\mathrm{Re}(\mu\pm\nu) > -\frac{1}{2}$ $\mathrm{Re}\, s > 0$
	14	$\frac{1}{s^{\mu}} e^{-\frac{a}{2s}} W_{\mu,\nu}(\frac{a}{s})$	$-a^{\frac{1}{2}} \operatorname{cosec}(2\nu\pi) t^{\mu-\frac{1}{2}} \Big\{ J_{2\nu}(2a^{\frac{1}{2}}t^{\frac{1}{2}}) \cdot \cos[(\mu+\nu)\pi] - J_{-2\nu}(2a^{\frac{1}{2}}t^{\frac{1}{2}}) \cos[(\mu-\nu)\pi] \Big\}$	$\mathrm{Re}(\mu\pm\nu) > -\frac{1}{2}$ $\mathrm{Re}\, s > 0$
	15	$\frac{1}{s^{\mu}} e^{\frac{a}{2s}} W_{\mu,\nu}(\frac{a}{s})$	$-a^{\frac{1}{2}} t^{\mu-\frac{1}{2}} \Big\{ \sin[(\nu-\mu)\pi] J_{2\nu}(2a^{\frac{1}{2}}t^{\frac{1}{2}}) + \cos[(\nu-\mu)\pi] Y_{2\nu}(2a^{\frac{1}{2}}t^{\frac{1}{2}}) \Big\}$	$\mathrm{Re}(\mu\pm\nu) > -\frac{1}{2}$ $\mathrm{Re}\, s > 0$
	16	$s^{\mu-\frac{1}{2}} e^{\frac{s}{2a}} W_{\mu,\nu}(\frac{s}{a})$	$\frac{a^{\frac{1}{4}} P^{2\mu+\frac{1}{2}}_{2\nu-\frac{1}{2}}\left[(1+at)^{\frac{1}{2}}\right]}{2^{2\mu+\frac{1}{2}} t^{\mu+\frac{1}{4}} (1+at)^{\frac{1}{2}}}$	$\mathrm{Re}\, \mu < \frac{1}{4}$ $\mathrm{Re}\, s > 0$
	17	$s^{\mu-1} e^{\frac{s}{2a}} W_{\mu,\nu}(\frac{s}{a})$	$\frac{P^{2\mu-\frac{1}{2}}_{2\nu-\frac{1}{2}}\left[(1+at)^{\frac{1}{2}}\right]}{2^{2\mu-\frac{1}{2}} a^{\frac{1}{4}} t^{\mu-\frac{1}{4}}}$	$\mathrm{Re}\, \mu < \frac{3}{4}$ $\mathrm{Re}\, s > 0$
	18	$\frac{e^{\frac{s}{2}}}{s^{\nu+\frac{1}{2}}} W_{\mu,\nu+n}(s)$	$\frac{n!}{\Gamma(n+\nu-\frac{\mu-1}{2})} t^{\nu-\frac{\mu+1}{2}} (1+t)^{\nu+\frac{\mu-1}{2}} P_n^{\nu-\frac{\mu+1}{2},\, \nu+\frac{\mu-1}{2}}(1+2t)$	$n = 0,1,2,\ldots$ $\mathrm{Re}\, s > 0$
	19	$\frac{1}{s^{\nu+\frac{1}{2}}} e^{\frac{as}{2}} W_{\mu,\nu}(as)$	$\frac{a^{\frac{1}{2}-\nu} t^{\nu-\mu-\frac{1}{2}} (a+t)^{\mu+\nu-\frac{1}{2}}}{\Gamma(\frac{1}{2}-\mu+\nu)}$	$\lvert\arg a\rvert < \pi$ $\mathrm{Re}(\nu-\mu) > -\frac{1}{2}$ $\mathrm{Re}\, s > 0$
	20	$\frac{1}{s^{\mu+\nu}} e^{\frac{s(a-b)}{2}} W_{\mu-\nu,\mu+\nu-\frac{1}{2}}[(a+b)s]$	$0 \qquad 0 < t < b$ $\frac{(t+a)^{2\mu-1}(t-b)^{2\nu-1}}{\Gamma(2\nu)(a+b)^{\mu+\nu-1}} \qquad t > b$	$b > 0$ $\mathrm{Re}\, \nu > 0$ $\lvert\arg(a+b)\rvert < \pi$ $\mathrm{Re}\, s > 0$

		g(s)	f(t)	
30.3.2 (Contd.)	21	$\frac{1}{s^{b}} e^{\frac{s}{a}} W_{\mu,\nu}(\frac{s}{a})$	$\frac{t^{b-\mu-1}}{a^{\mu}\Gamma(b-\mu)} {}_2F_1[\frac{1}{2}-\mu+\nu, \frac{1}{2}-\mu-\nu; b-\mu; -at]$	$\lvert\arg a\rvert < \pi$ $\mathrm{Re}(b-\mu) > 0$ $\mathrm{Re}\, s > 0$
	22	$\frac{1}{s^{b}} e^{\frac{a}{2s}} W_{\mu,\nu}(\frac{a}{s})$	$\frac{\Gamma(-2\nu) a^{\nu+\frac{1}{2}} t^{\nu+b-\frac{1}{2}}}{\Gamma(\frac{1}{2}-\mu-\nu)\Gamma(\frac{1}{2}+\nu+b)} {}_1F_2\left[\begin{matrix} \frac{1}{2}-\mu+\nu; \\ 1+2\nu, \frac{1}{2}+\nu+b; \end{matrix}\, at\right] + \frac{\Gamma(2\nu) a^{-\nu+\frac{1}{2}} t^{-\nu+b-\frac{1}{2}}}{\Gamma(\frac{1}{2}-\mu+\nu)\Gamma(\frac{1}{2}-\nu+b)} {}_1F_2\left[\begin{matrix} \frac{1}{2}-\mu-\nu; \\ 1-2\nu, \frac{1}{2}-\nu+b; \end{matrix}\, at\right]$	$\mathrm{Re}(\frac{1}{2}\pm\nu+b) > 0$ $\mathrm{Re}\, s > 0$
	23	$e^{bs} M_{-\mu,\nu}\left[\frac{a^2 b}{s+(s^2-a^2)^{\frac{1}{2}}}\right] \cdot W_{-\mu,\nu}[b\lvert s+(s^2-a^2)^{\frac{1}{2}}\rvert]$	$\frac{ab\Gamma(2\nu+1)}{\Gamma(\mu+\nu+\frac{1}{2})} \frac{t^{\mu-\frac{1}{2}}}{(t+2b)^{\mu+\frac{1}{2}}} I_{2\nu}[a(t^2+2bt)^{\frac{1}{2}}]$	$\mathrm{Re}(\mu+\nu) > -\frac{1}{2}$ $\lvert\arg b\rvert < \pi$ $\mathrm{Re}\, s > \lvert\mathrm{Re}\, a\rvert$
	24	$\frac{1}{s^{\mu}} e^{-\frac{a}{2s}} \Big\{ \frac{\tan[(\mu-\nu)\pi]\Gamma(\mu+\nu+\frac{1}{2})}{\Gamma(2\nu+1)} \cdot M_{\mu,\nu}(\frac{a}{s}) - \sec[(\mu-\nu)\pi] W_{\mu,\nu}(\frac{a}{s}) \Big\}$	$a^{\frac{1}{2}} t^{\mu-\frac{1}{2}} Y_{2\mu}(2a^{\frac{1}{2}}t^{\frac{1}{2}})$	$\mathrm{Re}(\mu\pm\nu) > -\frac{1}{2}$ $\mathrm{Re}\, s > 0$
	25	$e^{bs} W_{-\mu,\nu}\left[\frac{a^2 b}{s+(s^2-a^2)^{\frac{1}{2}}}\right] \cdot W_{-\mu,\nu}\left[b[s+(s^2-a^2)^{\frac{1}{2}}]\right]$	$\frac{2ab}{\Gamma(\mu+\nu+\frac{1}{2})\Gamma(\mu-\nu+\frac{1}{2})} \frac{t^{\mu-\frac{1}{2}}}{(t+2b)^{\mu+\frac{1}{2}}} \cdot K_{2\nu}[a(t^2+2bt)^{\frac{1}{2}}]$	$\mathrm{Re}(\frac{1}{2}+\mu\pm\nu) > 0$ $\lvert\arg b\rvert < \pi$ $\mathrm{Re}\, s > \lvert\mathrm{Re}\, a\rvert$
30.3.2.1	1	$s^{n-\frac{1}{2}} e^{\frac{s^2}{2a}} W_{-\frac{3}{4}-\frac{n}{2}, \frac{1}{4}-\frac{n}{2}}(\frac{s^2}{a})$	$(-1)^{n-1} 2a^{\frac{n}{2}-\frac{1}{4}} e^{-\frac{at^2}{8}} k_{2n}(\frac{at^2}{8})$	$n = 0,1,2,\ldots$ $\mathrm{Re}\, s > -\infty$
	2	$\frac{e^{\frac{as^2}{2}} W_{-3\nu,\nu}(as^2)}{s^{2\nu+1}}$	$\frac{2^{2\nu}\Gamma(2\nu+1)}{a^{\nu}\Gamma(8\nu+1)} t^{4\nu} e^{-\frac{t^2}{8a}} I_{2\nu}\left(\frac{t^2}{8a}\right)$	$\mathrm{Re}\, a > 0$ $\mathrm{Re}\, \nu > -\frac{1}{8}$ $\mathrm{Re}\, s > 0$

		g(s)	f(t)	
30.3.2.1 (Contd.)	3	$\frac{1}{s^{2\nu+1}} e^{\frac{as^2}{2}} W_{\mu,\nu}(as^2)$	$\frac{2^{1-\mu+\nu} a^{\frac{\mu+\nu+1}{2}}}{\Gamma(1-2\mu+2\nu)} t^{\nu-\mu-1} e^{-\frac{t^2}{8a}} M_{-\frac{\mu+3\nu}{2},\frac{\nu-\mu}{2}}\left(\frac{t^2}{4a}\right)$	Re a > 0 Re(μ−ν) < $\frac{1}{2}$ Re s > 0
30.5.3	1	$\frac{1}{s^{\mu}}\int_0^{\pi} e^{-\frac{r}{4s}} {}_1F_1[1-\mu+\nu;1+\nu;\frac{r}{4s}]\sin^{2\nu}\theta\,d\theta$ where $r = a^2-2ab\cos\theta + b^2$	$\frac{\pi\Gamma(2\nu+1)}{(ab)^{\nu}\Gamma(\mu)} t^{\mu-\nu-1} J_{\nu}(at^{\frac12}) J_{\nu}(bt^{\frac12})$	Re ν > $-\frac{1}{2}$ Re μ > 0 Re s > 0
30.21.1	1	$\frac{\Gamma(\frac12+\nu+s)\Gamma(\frac12-\nu+s)}{\Gamma(1-\mu+s)} W_{-s,\nu}(a)$	$e^{-\frac{a}{2}}(1-e^{-t})^{-\mu}\exp\left[-\frac{a}{2(e^{t}-1)}\right] W_{\mu,\nu}\left(\frac{a}{e^{t}-1}\right)$	Re a > 0 Re($\frac{1}{2}$±ν+s) > 0
	2	$\Gamma(s-\nu+1) W_{\frac{\nu-1}{2}-s,\frac{\nu}{2}}(a)$	$a^{\frac{1-\nu}{2}} e^{-\frac{a}{2}}(e^{t}-1)^{\nu-1}\exp\left[-\frac{a}{e^{t}-1}\right]$	Re a > 0 Re s > Re(ν−1)
	3	$\frac{\Gamma(\frac12-\mu-\nu+s)}{\Gamma(s+1)} W_{\mu-\frac{s}{2},\nu-\frac{s}{2}}(a)$	$\frac{(e^{t}-1)^{\nu-\frac12}}{\Gamma(2\nu+1)}\exp(-\frac{a}{2}e^{t}) M_{-\mu,\nu}(ae^{t}-a)$	Re ν > $-\frac{1}{2}$ Re s > Re(ν+μ)$-\frac{1}{2}$
	4	$\Gamma(s-b)\left[W_{-s+\frac12,b}(a)-(s-b)W_{-s-\frac12,b}(a)\right]$	$2^{b} a^{\frac{1-b}{2}} \sinh^{2b}\frac{t}{2}\, e^{-\frac{a}{2}\coth\frac{t}{2}}$	Re a > 0 Re s > Re b
	5	$\Gamma(\mu+s) W_{-s,\nu}(a)$	$\frac{ae^{t}}{(e^{t}-1)^{\mu+1}}\exp\left[-\frac{a}{2(e^{t}-1)}\right]W_{\mu,\nu}\left(\frac{a}{e^{t}-1}\right)$	Re a > 0 Re s > − Re μ
	6	$\Gamma(\frac12+\nu+s)\Gamma(\frac12-\nu+s) W_{-s,\nu}(a) W_{s,\nu}(b)$	$\frac12 a^{\frac12} b^{\frac12}\operatorname{cosech}\frac{t}{2}\, e^{-\frac{a+b}{2}\coth\frac{t}{2}}\cdot$ $K_{2\nu}[a^{\frac12}b^{\frac12}\operatorname{cosech}\frac{t}{2}]$	Re a > 0 Re b > 0 Re(s±2ν) > −1
	7	$\Gamma(s+\nu+\frac12)\Gamma(s-\nu+\frac12) W_{-s,\nu}(a) W_{-s,\nu}(b)$	$\frac{a^{\frac12}b^{\frac12}e^{\frac{a-b}{2}}}{\sinh\frac{t}{2}}\exp\left(-\frac{ae^{t}+b}{e^{t}-1}\right) K_{2\nu}\left[\frac{a^{\frac12}b^{\frac12}}{\sinh\frac{t}{2}}\right]$	Re a > 0 Re b > 0 Re(s±ν) > $-\frac{1}{2}$

		g(s)	f(t)	
30.21.1 (Contd.)	8	$\Gamma(s+\nu+\frac12)\Gamma(s-\nu+\frac12) W_{-s,\nu}(ia) W_{-s,\nu}(-ia)$	$a\operatorname{cosech}\frac{t}{2} K_{2\nu}[a\operatorname{cosech}\frac{t}{2}]$	Re a > 0 Re(s ±ν) > −1
	9	$\Gamma(s+\nu+\frac12) W_{-s,\nu}(b) M_{s,\nu}(a)$	$\frac12 a^{\frac12}b^{\frac12}\Gamma(2\nu+1)e^{\frac{a+b}{2}}\operatorname{cosech}\frac{t}{2}\exp\left(\frac{a-be^{t}}{e^{t}-1}\right)J_{2\nu}\left(\frac{a^{\frac12}b^{\frac12}}{\sinh\frac{t}{2}}\right)$	Re a > 0 Re b > 0 Re s > − Re ν $-\frac{1}{2}$
	10	$\frac{\Gamma(s)}{\Gamma(\nu+s)}\Phi_1(s,\mu,\nu;c,a)$	$\frac{(1-e^{-t})^{\nu-1}}{\Gamma(\nu)(1-ce^{-t})^{\mu}}\exp(ae^{-t})$	Re ν > 0 |arg(1−c)| < π Re s > 0
	11	$\frac{\Gamma(s)}{\Gamma(\nu+s)} a^{-\frac{s}{2}} M_{\frac{\nu-s}{2},\frac{\nu+s-1}{2}}(a)$	$\frac{a^{\frac{\nu}{2}}}{\Gamma(\nu)e^{\frac{a}{2}}}(1-e^{-t})^{\nu-1}\exp(ae^{-t})$	Re ν > 0 Re s > 0
31	1	${}_2F_1[a,b;c;-\frac{s}{d}]$	$d^{\frac{a+b-5}{2}} t^{\frac{a+b-3}{2}} e^{-\frac{d}{2}t} W_{\frac{a+b+1}{2}-c,\frac{a-b}{2}}(dt)$	Re s > − Re $\frac{d}{2}$
	2	${}_2F_1[a,b;c;\frac12-\frac{s}{d}]$	$\frac{d\Gamma(c)}{\Gamma(a)\Gamma(b)}(dt)^{\frac{a+b-3}{2}} W_{\frac{a+b+1}{2}-c,\frac{a-b}{2}}(dt)$	Re a > 0 Re b > 0 Re s > − Re $\frac{d}{2}$
31.1	1	${}_2F_1[1,2;2-\nu;\frac{a-s}{2a}]$	$\frac{2\pi a\nu(1-\nu)\, k_{2\nu}(at)}{\sin(\nu\pi)}$	Re s > 0
	2	$\frac{s^{m+n}}{(s+a)^{m+n+2}}{}_2F_1\left[-m,-n;2;\frac{a^2}{s^2}\right]$	$\frac{(-1)^{m+n}}{a^2 t} k_{2m+2}(\frac{at}{2})k_{2n+2}(\frac{at}{2})$	m,n = 0,1,2,... Re s > − Re a
	3	$\frac{(s-a)^m(s-b)^n}{s^{m+n+2}}{}_2F_1\left[-m,-n;-m-n-1;\frac{s(s-a-b)}{(s-a)(s-b)}\right]$	$\frac{(-1)^{m+n}(m+1)!(n+1)!}{ab(m+n+1)!}\frac{e^{\frac{a+b}{2}t}}{t}\cdot$ $k_{2m+2}(\frac{at}{2})\, k_{2n+2}(\frac{bt}{2})$	m,n = 0,1,2,... Re s > 0

		g(s)	f(t)	
31.2	1	$s^{n-a}\,{}_2F_1\left[-n,a-n;m-n+1;\ \frac{(s^2+a^2)^{\frac{1}{2}}}{s}\right]$	$\frac{(m-n)!}{m!\,\Gamma(a-n)}\,t^{a-1}\,P_n(m,t)$	n,m = 0,1,2,... Re a > min(n,m) Re s > o
	2	$\frac{1}{s^a}\,{}_2F_1\left[-\frac{n}{2},\frac{1-n}{2};1-a;s\right]$ If a is an integer take the first $1+[\frac{n}{2}]$ terms of the series.	$\frac{t^{a-\frac{n}{2}-1}}{2^{\frac{n}{2}}\,\Gamma(a)}\,He_n[(2t)^{\frac{1}{2}}]$	n = 0,1,2,... Re a > $\frac{n}{2}$ for n even Re a > $\frac{n-1}{2}$ for n odd Re s > o
	3	$\frac{1}{s^\nu}\,{}_2F_1[-n,b+n;c;\frac{a}{s}]$	$\frac{t^{\nu-1}}{\Gamma(\nu)}\,{}_2F_2\left[\begin{matrix}-n,b+n; & at\\ c,\ \nu; & \end{matrix}\right]$	Re ν > o n = 0,1,2,... Re s > $\frac{1}{2}$|Re a|
	4	$\frac{1}{s^\nu}\,{}_2F_1[-n,\nu;c;\frac{a}{s}]$	$\frac{n!\,\Gamma(c)}{\Gamma(n+c)\Gamma(\nu)}\,t^{\nu-1}L_n^{c-1}(at)$	n = 0,1,2,... Re ν > o Re s > $\frac{1}{2}$|Re a|
	5	$\frac{1}{s^\nu}\,{}_2F_1[\nu,b;c;\frac{a}{s}]$	$\frac{t^{\nu-\frac{c}{2}-1}}{a^{\frac{c}{2}}}\,M_{\frac{c}{2}-b,\frac{c}{2}-\frac{1}{2}}(at)$	Re ν > o Re s > $\frac{1}{2}$|Re a|
	6	$\frac{1}{s^\nu}\,{}_2F_1[\nu,b;2(\nu-1);\frac{a}{s}]$	$\frac{e^{\frac{at}{2}}}{a^{\nu-1}\Gamma(\nu)}\,M_{\nu-b-1,\nu-\frac{3}{2}}(at)$	Re ν > o Re s > $\frac{1}{2}$|Re a|
	7	$\frac{1}{s^{a+\nu+1}}\,{}_2F_1[a+\nu+1,\mu+\nu;2\nu;\frac{2a}{s}]$	$\frac{t^a e^{at}\,M_{-\mu,\nu-\frac{1}{2}}(2at)}{(2a)^\nu\,\Gamma(a+\nu+1)}$	Re(a+ν) > − 1 Re s > |Re a|
	8	$\frac{1}{s^\nu}\,F_1(a,b,\nu,c;x,\frac{y}{s})$	$\frac{t^{\nu-1}}{\Gamma(\nu)}\,\Phi_1(a,b,c;x,yt)$	Re ν > o Re s > Max o, Re y
	9	$\frac{1}{s^\nu}\,F_1(\nu,a,b,c;\frac{x}{s},\frac{y}{s})$	$\frac{t^{\nu-1}}{\Gamma(\nu)}\,\Phi_2(a,b,c;xt,yt)$	Re ν > o Re s > Max o, Re x, Re y

		g(s)	f(t)	
31.2 (Contd.)	10	$\frac{1}{s^\nu}\,F_2(a,b,\nu,c,d;x,\frac{y}{s})$	$\frac{t^{\nu-1}}{\Gamma(\nu)}\,\Psi_1(a,b,c,d;x,yt)$	Re ν > o Re s > Max o, Re y
	11	$\frac{1}{s^\nu}\,F_3(a,b,c,\nu;k;x,\frac{y}{s})$	$\frac{t^{\nu-1}}{\Gamma(\nu)}\,\Xi_1(a,b,c,k;x,yt)$	Re ν > o Re s > Max o, Re y
	12	$\frac{1}{s^\nu}\,F_4(\nu,b,c,d;\frac{x}{s},\frac{y}{s})$	$\frac{t^{\nu-1}}{\Gamma(\nu)}\,\Psi_2(b,c,d;xt,yt)$	Re ν > o Re s > Max o, Re x, Re y
31.2.1	1	$\frac{(s-a)^n(s-b)^m}{s^{m+n+\frac{1}{2}}}\,{}_2F_1\left[-m,-n;-m-n+\frac{1}{2};\ \frac{s(s-a-b)}{(s-a)(s-b)}\right]$	$\frac{(-2)^{m+n}(m+n)!}{\pi^{\frac{1}{2}}(2m+2n)!}\,t^{-\frac{1}{2}}\cdot He_{2n}[(2at)^{\frac{1}{2}}]\,He_{2m}[(2bt)^{\frac{1}{2}}]$	m,n = 0,1,2,... Re s > o
	2	$\frac{(s-a)^n(s-b)^m}{s^{m+n+\frac{3}{2}}}\,{}_2F_1\left[-m,-n;-m-n-\frac{1}{2};\ \frac{s(s-a-b)}{(s-a)(s-b)}\right]$	$-\frac{(-2)^{m+n+1}(m+n+1)!}{(ab\pi)^{\frac{1}{2}}(2m+2n+2)!}\,t^{-\frac{1}{2}}\cdot He_{2n+1}[(2at)^{\frac{1}{2}}]\,He_{2m+1}[(2bt)^{\frac{1}{2}}]$	m,n = 0,1,2,... Re s > o
	3	$\frac{(s-b)^n(s-c)^m}{s^{m+n+a+1}}\,{}_2F_1\left[-m,-n;-m-n-a;\ \frac{s(s-b-c)}{(s-b)(s-c)}\right]$	$\frac{m!\,n!}{\Gamma(m+n+a+1)}\,t^a\,L_n^a(bt)\,L_m^a(ct)$	Re a > − 1 n,m = 0,1,2,... Re s > o
	4	$\frac{1}{s^\nu}\,{}_2F_1[-n,\frac{\nu}{2};\frac{1}{2}-n;(1-\frac{1}{s})^2]$	$\frac{\pi(n!)^2}{2^{\nu-1}\Gamma(\frac{\nu}{2})\Gamma(n+\frac{1}{2})}\,t^{\nu-1}[L_n^{\frac{\nu-1}{2}}(\frac{t}{2})]^2$	Re ν > o n = 0,1,2,... Re s > o
	5	$\frac{(a-s)^n}{s^{n+\nu}}\,{}_2F_1[n+\nu,\frac{1}{2}-\nu;n+1;1-\frac{a}{s}]$	$\frac{2^{2n-\frac{1}{2}+\nu}\,n!}{\pi^{\frac{1}{2}}\,\Gamma(2n+2\nu)}\,t^{\nu-1}e^{\frac{at}{2}}\,D_{2\nu+2n-1}[(2at)^{\frac{1}{2}}]$	n = 0,1,2,... Re ν > o Re s > o
	6	$\frac{(s-1)^n}{s^\nu}\,{}_2F_1[-n,a;1-\nu;\frac{s}{s-1}]$	$\frac{n!}{\Gamma(\nu)}\,t^{\nu-1-n}\,L_n^{\nu+a-1-n}(t)$	Re ν > Max n, n − Re a n = 0,1,2,... Re s > o

		$g(s)$	$f(t)$	
31.2.1 (Contd.)	7	$\frac{1}{s^{2\nu+1}}\,{}_2F_1[\nu,\nu+1;2\nu;-\frac{a^2}{s^2}]$	$\frac{\pi a^{1-2\nu}}{2\nu B(\nu,\nu)}\,t J^2_{\nu-\frac{1}{2}}(\frac{at}{2})$	$\mathrm{Re}\,\nu > -\frac{1}{2}$ $\mathrm{Re}\,s > \lvert \mathrm{Im}\,a \rvert$
	8	$\frac{1}{s^{4\nu-1}}\,{}_2F_1[\nu,2\nu-\frac{1}{2};\nu+\frac{1}{2};-\frac{a^2}{s^2}]$	$\frac{\pi\Gamma(\nu+\frac{1}{2})}{\Gamma(\nu)\Gamma(2\nu-\frac{1}{2})}(\frac{t}{2a})^{2\nu-1} J^2_{\nu-\frac{1}{2}}(\frac{at}{2})$	$\mathrm{Re}\,\nu > \frac{1}{4}$ $\mathrm{Re}\,s > \lvert \mathrm{Im}\,a \rvert$
	9	$\frac{1}{s^{2\nu}}\,{}_2F_1[\nu,\nu+\frac{1}{2};\mu;\frac{a^2}{s^2}]$	$\frac{\Gamma(\mu)(2t)^{2\nu-\mu} I_{\mu-1}(at)}{a^{\mu-1}\Gamma(2\nu)}$	$\mathrm{Re}\,\nu > 0$ $\mathrm{Re}\,\mu > 0$ $\mathrm{Re}\,s > \lvert \mathrm{Re}\,a \rvert$
	10	$\frac{1}{s^{2\nu}}\,{}_2F_1[\nu,\nu+\frac{1}{2};\mu;-\frac{a^2}{s^2}]$	$\frac{\Gamma(\mu)(2t)^{2\nu-\mu} J_{\mu-1}(at)}{a^{\mu-1}\Gamma(2\nu)}$	$\mathrm{Re}\,\nu > 0$ $\mathrm{Re}\,\mu > 0$ $\mathrm{Re}\,s > \lvert \mathrm{Im}\,a \rvert$
	11	$\frac{1}{(s^2+c^2)^a}\,{}_2F_1[a,b;a+b+\frac{1}{2};\frac{c^2}{s^2+c^2}]$	$(\frac{2}{c})^{2b}\frac{\Gamma(a+b+\frac{1}{2})}{\Gamma(2a)}(\frac{2t}{c})^{a-b-\frac{1}{2}} J_{a+b-\frac{1}{2}}(ct)$	$\mathrm{Re}\,a > 0$ $\mathrm{Re}\,s > \lvert \mathrm{Im}\,c \rvert$
	12	$\frac{1}{(s+h)^a}\,{}_2F_1[a,b;c;\frac{s-h}{s+h}]$	$\frac{\Gamma(c)\,t^{\frac{a-b+c-3}{2}}}{\Gamma(a)\Gamma(c-b)(2h)^{\frac{a+b-c+1}{2}}} W_{\frac{a-b-c+1}{2},\frac{a+b-c}{2}}(2ht)$	$\mathrm{Re}(c-b) > 0$ $\mathrm{Re}\,a > 0$ $\mathrm{Re}\,s > -\mathrm{Re}\,h$
	13	$\frac{{}_2F_1[a,b;c;\frac{2h}{s+h}]}{(s+h)^a}$	$\frac{t^{a-\frac{c+2}{2}} M_{\frac{c}{2}-b,\frac{c-1}{2}}(2ht)}{(2h)^{\frac{c}{2}}\Gamma(a)}$	$\mathrm{Re}\,a > 0$ $\mathrm{Re}\,s > \lvert \mathrm{Re}\,h \rvert$
	14	$\frac{1}{s^{\nu}} F_3(a,\nu,b,\frac{\nu+1}{2},c;x,\frac{4y}{s^2})$	$\frac{t^{\nu-1}}{\Gamma(\nu)}\Xi_2(a,b,c;x,yt^2)$	$\mathrm{Re}\,\nu > 0$ $\mathrm{Re}\,s > 2\lvert \mathrm{Re}\,y^{\frac{1}{2}} \rvert$
	15	$\frac{1}{s^{c+\mu+\nu-2}} F_4\left(\frac{c+\mu+\nu}{2}-1,\frac{c+\mu+\nu-1}{2};\mu,\nu;\frac{a^2}{s^2},\frac{b^2}{s^2}\right)$	$\frac{\pi^{\frac{1}{2}}\Gamma(\mu)\Gamma(\nu)}{2^{c-1}a^{\mu-1}b^{\nu-1}\Gamma(\frac{c+\mu+\nu}{2}-1)\Gamma(\frac{c+\mu+\nu-1}{2})}\,\cdot$ $t^{c-1} I_{\mu-1}(at) I_{\nu-1}(bt)$	$\mathrm{Re}(c+\mu+\nu) > 2$ $\mathrm{Re}\,s > \lvert \mathrm{Re}\,a \rvert + \lvert \mathrm{Re}\,b \rvert$

		$g(s)$	$f(t)$	
1.5	1	$\frac{1}{s^{\mu}}\int_0^{\pi} {}_2F_1[\frac{\mu}{2},\frac{\mu+1}{2};\nu+1;-\frac{r}{s^2}]\sin^{2\nu}\theta\,d\theta$ where $r = a^2 - 2ab\cos\theta + b^2$	$\frac{\pi\Gamma(2\nu+1)}{(ab)^{\nu}\Gamma(\mu)}\,t^{\mu-2\nu-1} J_{\nu}(at) J_{\nu}(bt)$	$\mathrm{Re}\,\mu > 0$ $\mathrm{Re}\,s > \lvert \mathrm{Im}\,a \rvert$ $+\lvert \mathrm{Im}\,b \rvert$
1.21.1	1	$\frac{\Gamma(s)}{\Gamma(s+\frac{1}{2})}\,{}_2F_1[-\mu-\nu,\frac{1}{2}-\mu+\nu;s+\frac{1}{2};a^2]$	$\frac{\Gamma(\frac{1}{2}-\mu-\nu)\Gamma(1-\mu+\nu)}{2^{2\mu+1}\pi}\,\frac{(1-a^2+a^2e^{-t})^{\mu}}{(1-e^{-t})^{\frac{1}{2}}}\,\cdot$ $\left\{P^{2\mu}_{2\nu}[a(1-e^{-t})^{\frac{1}{2}}] + P^{2\mu}_{2\nu}[-a(1-e^{-t})^{\frac{1}{2}}]\right\}$	$\lvert a \rvert < 1$ $\mathrm{Re}\,s > 0$
	2	$\frac{\Gamma(s)}{\Gamma(s+\frac{3}{2})}\,{}_2F_1[\frac{1}{2}-\mu-\nu,1-\mu+\nu;s+\frac{3}{2};a^2]$	$-\frac{\Gamma(-\mu-\nu)\Gamma(\frac{1}{2}-\mu+\nu)}{4^{\mu+\frac{1}{2}}\pi a}(1-a^2+a^2e^{-t})^{\mu}\,\cdot$ $\left\{P^{2\mu}_{2\nu}[a(1-e^{-t})^{\frac{1}{2}}] - P^{2\mu}_{2\nu}[-a(1-e^{-t})^{\frac{1}{2}}]\right\}$	$\lvert a \rvert < 1$ $\mathrm{Re}\,s > 0$
	3	$B(s,\nu)\,{}_2F_1[a,b;s+\nu;h]$	$(1-e^{-t})^{\nu-1}\,{}_2F_1[a,b;\nu;h(1-e^{-t})]$	$\mathrm{Re}\,\nu > 0$ $\lvert \arg(1-h) \rvert < \pi$ $\mathrm{Re}\,s > 0$
	4	$B(s,\nu)\,{}_2F_1[\mu,s;s+\nu;h]$	$\frac{(1-e^{-t})^{\nu-1}}{(1-he^{-t})^{\mu}}$	$\mathrm{Re}\,\nu > 0$ $\lvert \arg(1-h) \rvert < \pi$ $\mathrm{Re}\,s > 0$
	5	$B(\nu,s-\nu)\,{}_2F_1[a,\nu;s;c]$	$\frac{e^{t}(e^{t}-1)^{\nu-1}}{[1-c(1-e^{-t})]^{a}}$	$\lvert c \rvert < 1$ $\mathrm{Re}\,\nu > 0$ $\mathrm{Re}\,s > \mathrm{Re}\,\nu$
2	1	$\frac{1}{s}\,{}_pF_q\left[\begin{matrix}(b); & \frac{a}{s}\\ (c); & \end{matrix}\right]$	${}_pF_{q+1}\left[\begin{matrix}(b) & ;at\\ (c),1; & \end{matrix}\right]$	$q > p-1$ $\mathrm{Re}\,s > \lvert \mathrm{Re}\,a \rvert$
	2	$\frac{1}{s}\,{}_pF_q\left[\begin{matrix}(b),1; & \frac{a}{s}\\ (c) & ; \end{matrix}\right]$	${}_{p-1}F_q\left[\begin{matrix}(b); & at\\ (c); & \end{matrix}\right]$	$q > p-1$ $\mathrm{Re}\,s > \lvert \mathrm{Re}\,a \rvert$
	3	$\frac{1}{s}\,{}_pF_q\left[\begin{matrix}(b),1,\frac{1}{2}; & \frac{a^2}{s^2}\\ (c) & ; \end{matrix}\right]$	${}_{p-2}F_q\left[\begin{matrix}(b); & (\frac{at}{2})^2\\ (c); & \end{matrix}\right]$	$q > p-1$ $\mathrm{Re}\,s > \lvert \mathrm{Re}\,a \rvert$

32.2

		$g(s)$	$f(t)$	
32.2	1	$\frac{1}{s^{\nu}} E(a,b,\nu:c:\frac{s}{h})$	$\frac{\Gamma(a)\Gamma(b)}{\Gamma(c)} t^{\nu-1} {}_2F_1[a,b;c;-ht]$	$\operatorname{Re}\nu > 0$ $\operatorname{Re} s > 0$
	2	$\frac{1}{s^{\nu}} E(c-a,c-b,\nu:c:\frac{s}{h})$	$\frac{\Gamma(c-a)\Gamma(c-b)}{\Gamma(c)} t^{\nu-1}(1+ht)^{a+b-c}\, {}_2F_1[a,b;c;-ht]$	$\operatorname{Re}\nu > 0$ $\operatorname{Re} s > 0$
	3	$\frac{1}{s^{b+\mu}} E(-\nu,\nu+1,b+\mu:\mu+1:\frac{s}{a})$	$-\frac{\pi \operatorname{cosec}(\nu\pi)}{a^{\frac{\mu}{2}}} t^{b+\frac{\mu}{2}-1}(at+1)^{\frac{\mu}{2}} P_{\nu}^{-\mu}(2at+1)$	$\operatorname{Re}(b+\mu) > 0$ $\operatorname{Re} s > 0$
	4	$\frac{1}{s^{b}} E(\mu+\nu+1,\mu-\nu,b:\mu+1:\frac{s}{a})$	$\frac{\Gamma(\mu+\nu+1)\Gamma(\mu-\nu)}{a^{\frac{\mu}{2}}} \frac{t^{b-\frac{\mu}{2}-1}}{(at+1)^{\frac{\mu}{2}}} P_{\nu}^{-\mu}(2at+1)$	$\operatorname{Re} b > 0$ $\operatorname{Re} s > 0$
	5	$\frac{1}{s^{a_{m+1}}} E(m+1;a_r:n;b_k:s)$	$t^{a_{m+1}-1} E(m;a_r:n;b_k:\frac{1}{t})$	$\operatorname{Re} a_{m+1} > 0$ $\operatorname{Re} s > 0$
	6	$\frac{1}{s^{b}}\, {}_3F_3\left[\begin{matrix}\frac{\mu+\nu-1}{2}, \frac{\mu+\nu}{2}, b ; \\ \mu, \nu, \mu+\nu-1;\end{matrix} -\frac{a}{s}\right]$	$\frac{2^{\mu+\nu-3}\Gamma(\mu)\Gamma(\nu)}{a^{\frac{\mu+\nu-2}{2}}\Gamma(b)} t^{b-\frac{\mu+\nu}{2}} J_{\mu-1}(a^{\frac{1}{2}}t^{\frac{1}{2}}) J_{\nu-1}(a^{\frac{1}{2}}t^{\frac{1}{2}})$	$\operatorname{Re} b > 0$ $\operatorname{Re} s > 0$
	7	$\frac{1}{s^{\frac{1}{2}}}\, {}_pF_q\left[\begin{matrix}a_1,\dots,a_p; \\ b_1,\dots,b_q;\end{matrix} -ks^{\frac{1}{2}}\right]$	$(\pi t)^{-\frac{1}{2}}\, {}_{2p}F_{2q}\left[\begin{matrix}\frac{a_1}{2},\frac{a_1+1}{2},\dots,\frac{a_p}{2},\frac{a_p+1}{2}; \\ \frac{b_1}{2},\frac{b_1+1}{2},\dots,\frac{b_q}{2},\frac{b_q+1}{2};\end{matrix} -2^{p-q-2}\frac{k^2}{t}\right]$	$k > 0$ $p \leq q$ $\operatorname{Re} s > 0$
	8	$\frac{1}{s^{\nu}}\, {}_pF_q\left[\begin{matrix}a_1,\dots,a_p; \\ b_1,\dots,b_q;\end{matrix} \frac{k}{s}\right]$	$\frac{t^{\nu-1}}{\Gamma(\nu)}\, {}_pF_{q+1}\left[\begin{matrix}a_1,\dots,a_p ; \\ b_1,\dots,b_q,\nu;\end{matrix} kt\right]$	$p \leq q+1$ $\operatorname{Re}\nu > 0$ $\operatorname{Re} s > 0$ if $p < q+1$ $\operatorname{Re} s > k$ if $p = q+1$
	9	$\frac{1}{s^{a_p}}\, {}_pF_q\left[\begin{matrix}a_1,\dots,a_p; \\ b_1,\dots,b_q;\end{matrix} \frac{k}{s}\right]$	$\frac{t^{a_p-1}}{\Gamma(a_p)}\, {}_{p-1}F_q\left[\begin{matrix}a_1,\dots,a_{p-1}; \\ b_1,\dots,b_q ;\end{matrix} kt\right]$	$p-1 \leq q$ $\operatorname{Re} a_p > 0$ $\operatorname{Re} s > 0$ if $p-1 < q$ $\operatorname{Re} s > \operatorname{Re} k$ if $p-1=q$

		$g(s)$	$f(t)$	
32.2.1	1	$\frac{1}{s^{a+1}}\, {}_3F_2\left[\begin{matrix}\frac{a+1}{3},\frac{a+2}{3},\frac{a+3}{3}; \\ \mu, \nu ;\end{matrix} -\frac{1}{s^3}\right]$	$\frac{t^{a}}{\Gamma(a+1)}\, {}_0F_2\left[\begin{matrix} ; \\ \mu,\nu;\end{matrix} -\frac{t^3}{27}\right]$	$\operatorname{Re} a > -1$ $\operatorname{Re} s > \frac{1}{2}$
	2	$\frac{1}{s^{\nu}}\, {}_pF_q\left[\begin{matrix}(a); \\ (b);\end{matrix} \frac{4k^2}{s^2}\right]$	$\frac{t^{\nu-1}}{\Gamma(\nu)}\, {}_pF_{q+2}\left[\begin{matrix}(a) ; \\ (b),\frac{\nu}{2},\frac{\nu+1}{2};\end{matrix} k^2t^2\right]$	$p \leq q+1$ $\operatorname{Re}\nu > 0$ $\operatorname{Re} s > 0$ if $p < q+1$ $\operatorname{Re} s > \lvert\operatorname{Re} k\rvert$ if $p = q+1$
	3	$\frac{1}{s^{2\nu}}\, {}_{p+2}F_q\left[\begin{matrix}a_1,\dots,a_p,\frac{\nu}{2},\frac{\nu+1}{2}; \\ b_1,\dots,b_q ;\end{matrix} \frac{4k^2}{s^2}\right]$	$\frac{t^{2\nu-1}}{\Gamma(2\nu)}\, {}_pF_q\left[\begin{matrix}a_1,\dots,a_p; \\ b_1,\dots,b_q;\end{matrix} k^2t^2\right]$	$p < q$ $\operatorname{Re}\nu > 0$ $\operatorname{Re} s > 0$ if $p < q-1$ $\operatorname{Re} s > \lvert\operatorname{Re} k\rvert$ if $p = q-1$
	4	$\frac{1}{s^{c}}\, {}_{p+n}F_q\left[\begin{matrix}a_1,\dots,a_p,\frac{c}{n},\frac{c+1}{n},\dots,\frac{c+n-1}{n}; \\ b_1,\dots,b_q ;\end{matrix} (\frac{nk}{s})^n\right]$	$\frac{t^{c-1}}{\Gamma(c)}\, {}_pF_q\left[\begin{matrix}a_1,\dots,a_p; \\ b_1,\dots,b_q;\end{matrix} (kt)^n\right]$	$n = 1,2,3,\dots$ $p+n \leq q+1$ $\operatorname{Re} c > 0$ $\operatorname{Re} s > 0$ if $p+n \leq q$ $\operatorname{Re}(s+nke^{2\pi ir/n}) > 0$ $(r = 0,1,\dots,n-1)$ if $p+n = q+1$
	5	$\frac{1}{(s+ia)^{\mu+\nu}} F_A\left(\mu+\nu;\nu_1+\frac{1}{2},\dots,\nu_n+\frac{1}{2}; 2\nu_1+1,\dots,2\nu_n+1;\frac{2a_1 i}{s+ia},\dots,\frac{2a_n i}{s+ia}\right)$ If $n=2$ replace F_A by F_2	$\frac{2^{\nu}t^{\mu-1}}{\Gamma(\mu+\nu)} \prod_{r=1}^{n}\left[\frac{\Gamma(\nu_r+1)}{a_r^{\nu_r}} J_{\nu_r}(a_r t)\right]$	$\operatorname{Re}(\mu+\nu) > 0$ $\nu = \sum_{r=1}^{n}\nu_r$ $a = \sum_{r=1}^{n} a_r$ $n = 1,2,3,\dots$ $\operatorname{Re}(s\pm ia_1\pm\dots\pm ia_n) > 0$
	6	$\frac{1}{(s+a)^{b+U}} F_A\left(b+U;\nu_1-\mu_1,\dots,\nu_n-\mu_n; 2\nu_1,\dots,2\nu_n; \frac{a_1}{s+a},\dots,\frac{a_n}{s+a}\right)$ $a = \frac{1}{2}\sum_{r=1}^{n} a_r \quad U = \sum_{r=1}^{n}\nu_r$	$\frac{t^{b-1}\prod_{r=1}^{n} M_{\mu_r,\nu_r-\frac{1}{2}}(a_r t)}{\prod_{r=1}^{n} a_r^{\nu_r}\Gamma(b+U)}$	$\operatorname{Re}(b+U) > 0$ $\operatorname{Re}(s\pm\frac{a_1}{2}\pm\dots\pm\frac{a_n}{2}) > 0$

		$g(s)$	$f(t)$	
32.2.1 (Contd.)	7	$\frac{1}{(s+a)^{b+n}} F_A\left(b+n;-m_1,\ldots,-m_n;2,\ldots,2;\ \frac{2a_1}{s+a},\ldots,\frac{2a_n}{s+a}\right)$	$\dfrac{(-1)^m t^{b-1} \prod_{r=1}^{n} k_{2m_r+2}(a_r t)}{2^n \prod_{r=1}^{n} a_r \Gamma(b+n)}$	$\operatorname{Re}(b+n) > 0$ $n = 1,2,3,\ldots$ $m_r = 1,2,3,\ldots$ $m = \sum_{r=1}^{n} m_r$ $a = \sum_{r=1}^{n} a_r$ $\operatorname{Re} s > 0$
32.21.1	1	$B(s,\nu)\,{}_3F_2\left[\begin{matrix} a,b,\nu; \\ c,s+\nu; \end{matrix} h\right]$	$(1-e^{-t})^{\nu-1}\,{}_2F_1[a,b;c;h(1-e^{-t})]$	$\operatorname{Re} \nu > 0$ $\lvert\arg(1-h)\rvert < \pi$ $\operatorname{Re} s > 0$
	2	$B(s,\nu)\,{}_3F_2\left[\begin{matrix} a,b,s; \\ c,s+\nu; \end{matrix} h\right]$	$(1-e^{-t})^{\nu-1}\,{}_2F_1[a,b;c;he^{-t}]$	$\operatorname{Re} \nu > 0$ $\lvert\arg(1-h)\rvert < \pi$ $\operatorname{Re} s > 0$
	3	$B(\nu,s)\,{}_{p+1}F_{q+1}\left[\begin{matrix} a_1,\ldots,a_p,\ \nu; \\ b_1,\ldots,b_q,s+\nu; \end{matrix} k\right]$	$(1-e^{-t})^{\nu-1}\,{}_pF_q\left[\begin{matrix} a_1,\ldots,a_p; \\ b_1,\ldots,b_q; \end{matrix} k(1-e^{-t})\right]$	$\operatorname{Re} \nu > 0$ $p \leq q$ Valid for $p=q+1$ if $\lvert k\rvert < 1$ $\operatorname{Re} s > 0$
	4	$B(\nu,s)\,{}_{p+1}F_{q+1}\left[\begin{matrix} a_1,\ldots,a_p,s\ ; \\ b_1,\ldots,b_q,s+\nu; \end{matrix} k\right]$	$(1-e^{-t})^{\nu-1}\,{}_pF_q\left[\begin{matrix} a_1,\ldots,a_p; \\ b_1,\ldots,b_q; \end{matrix} ke^{-t}\right]$	$\operatorname{Re} \nu > 0$ $p \leq q$ Valid for $p=q+1$ if $\lvert k\rvert < 1$ $\operatorname{Re} s > 0$
	5	$\Gamma(s-a_m)E(m;a_r:n;b_j,s:k)$	$(e^t-1)^{a_m}E(m-1;a_r:n;b_j:\frac{k}{1-e^{-t}})$	$\operatorname{Re} a_m > -1$ $n = 0,1,2,\ldots$ $m = 1,2,3,\ldots$ $\operatorname{Re} s > \operatorname{Re} a_m$
32.21.3.1	1	$2^{2s}B(s,s+a)\,{}_3F_2\left[\begin{matrix} -n,n+1,s+a; \\ 1,\ 2s+a; \end{matrix} 1\right]$	$\dfrac{[1-(1-e^{-t})^{\frac{1}{2}}]^a+(-1)^n[1+(1-e^{-t})^{\frac{1}{2}}]^a}{2^a(1-e^{-t})^{\frac{1}{2}}}\cdot P_n[(1-e^{-t})^{\frac{1}{2}}]$	$n = 0,1,2,\ldots$ $\operatorname{Re} s > 0$

		$g(s)$	$f(t)$	
37	1	$I(a,b;s)$	$\dfrac{1}{2t}\dfrac{1}{[at^{\frac{1}{2}}J_1(t^{\frac{1}{2}})+bJ_0(t^{\frac{1}{2}})]^2+[at^{\frac{1}{2}}Y_1(t^{\frac{1}{2}})+bY_0(t^{\frac{1}{2}})]^2}$	$\operatorname{Re} s > 0$
	2	$S(1,s)S(1,-s)$	$-\frac{1}{t}\log(1-t^2)$	$\operatorname{Re} s > 0$
	3	$S(1,is)S(1,-is)$	$-\dfrac{\log(1+t^2)}{t}$	$\operatorname{Re} s > 0$
	4	$S(\nu,s)$	$\dfrac{1}{(1+t)^\nu}$	$\operatorname{Re} s > 0$
37.2	1	$\frac{1}{s^{\frac{1}{2}}}Q^{1,\nu}(s)$	$\pi(\frac{t}{2})^{\frac{1}{2}} I_{\frac{\nu}{2}+\frac{1}{4}}(\frac{t}{2})\, I_{\frac{\nu}{2}+\frac{3}{4}}(\frac{t}{2})$	$\operatorname{Re} s > 1$
	2	$\frac{1}{s^{\nu-\frac{1}{2}}}Q^{\nu,\frac{1}{2}-\nu}(s)$	$(2\pi)^{\frac{1}{2}}(2t)^{\nu-1}\sinh(\frac{t}{2})\, I_{\nu-1}(\frac{t}{2})$	$\operatorname{Re} s > 1$
	3	$\frac{1}{s^{\nu-\frac{1}{2}}}Q^{\nu,-\nu-\frac{1}{2}}(s)$	$(2\pi)^{\frac{1}{2}}(4t)^{\nu-1}\cosh(\frac{t}{2})\, I_{\nu-1}(\frac{t}{2})$	$\operatorname{Re} s > 1$
	4	$\frac{1}{s^{\frac{1}{2}}}\mu(\frac{a}{s},b)$	$\dfrac{\mu(2a^{\frac{1}{2}}t^{\frac{1}{2}},b)}{2^{b+1}\pi^{\frac{1}{2}}t^{\frac{1}{2}}}$	$\operatorname{Re} s > 0$
	5	$\frac{1}{s^{\frac{1}{2}}}\nu(\frac{a}{s})$	$\dfrac{\nu(2a^{\frac{1}{2}}t^{\frac{1}{2}})}{2\pi^{\frac{1}{2}}t^{\frac{1}{2}}}$	$\operatorname{Re} s > 0$
	6	$\frac{1}{s^{\frac{1}{2}}}\nu(\frac{a}{s},b)$	$\dfrac{1}{2(\pi t)^{\frac{1}{2}}}\nu(2a^{\frac{1}{2}}t^{\frac{1}{2}},2b)$	$\operatorname{Re} b > -\frac{1}{2}$ $\operatorname{Re} s > 0$
	7	$\frac{1}{s^{\frac{3}{2}}}\nu(\frac{a}{s},b)$	$\dfrac{2}{(\pi a)^{\frac{1}{2}}}\nu(2a^{\frac{1}{2}}t^{\frac{1}{2}},2b+1)$	$\operatorname{Re} b > -\frac{3}{2}$ $\operatorname{Re} s > 0$
37.21	1	$\Gamma(\frac{s}{a})\nu(1,\frac{s}{a})$	$a\nu(1-e^{-at})$	$\operatorname{Re} s > 0$