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Tables of One- and Two-Dimensional Inverse Laplace Transforms of Complete Elliptic Integrals*

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This paper gives an extensive tabulation of one- and two-dimensional inverse Laplace transforms of complete elliptic integrals.

Key words: Complete elliptic integrals; inverse Laplace transforms.

Introduction

In a recent statistical study of radio wave propagation by the author,[1] a need arose frequently for inverse Laplace transforms of elliptic integrals. Although comprehensive tables of Laplace transforms and inverse transforms are available,[2] none was sufficiently extensive for the present purpose. It was therefore decided to extend and systematize those parts of existing tables pertaining to complete elliptic integrals, and the present paper is the outcome of this endeavor. A substantial portion of the results is believed to be new.

Throughout this paper, we are adhering to the notations for special functions given in the Bateman Memorial Volumes.[3] The complete elliptic integrals denoted by $K(k)$, $E(k)$, $B(k)$, $C(k)$ and $D(k)$ are defined as follows:

$$K(k)=\int_0^{\frac{\pi}{2}}\frac{d\theta}{\sqrt{1-k^2\sin^2\theta}}=\frac{\pi}{2}\,{}_2F_1\left(\frac{1}{2},\frac{1}{2};1;k^2\right),$$

$$E(k)=\int_0^{\frac{\pi}{2}}\sqrt{1-k^2\sin^2\theta}\,d\theta=\frac{\pi}{2}\,{}_2F_1\left(-\frac{1}{2},\frac{1}{2};1;k^2\right),$$

$$B(k)=\int_0^{\frac{\pi}{2}}\frac{\cos^2\theta}{\sqrt{1-k^2\sin^2\theta}}\,d\theta=\frac{\pi}{4}\,{}_2F_1\left(\frac{1}{2},\frac{1}{2};2;k^2\right),$$

$$C(k)=\int_0^{\frac{\pi}{2}}\frac{\sin^2\theta\cos^2\theta}{(1-k^2\sin^2\theta)^{3/2}}\,d\theta=\frac{\pi}{16}\,{}_2F_1\left(\frac{3}{2},\frac{3}{2};3;k^2\right),$$

$$D(k)=\int_0^{\frac{\pi}{2}}\frac{\sin^2\theta}{\sqrt{1-k^2\sin^2\theta}}\,d\theta=\frac{\pi}{4}\,{}_2F_1\left(\frac{1}{2},\frac{3}{2};2;k^2\right).$$

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[1] Okui, S., Some statistical considerations concerning the one-sided Gauss fading, Report to the Antenna and Propagation Technical Group Meeting (Inst. Elect. Commun. Engrs. Japan), December 1971.
[2] See the list of references given at the end of the present paper.
[3] Erdélyi, A., et al., Higher Transcendental Functions, Vols. 1, 2, 3 (McGraw-Hill Book Co., New York 1953).

These functions are connected with each other by the following relations:[4]

$$K=D+B, \qquad 2D=K+k^2C, \qquad E=(1+k'^2)B+k'^2k^2C,$$

$$K=2B+k^2C, \qquad E=k'^2D+B, \qquad (1+k'^2)K=2E+k^4C,$$

$$D=B+k^2C, \qquad E=k'^2K+k^2B, \qquad (1+k'^2)D=E+k^2C,$$

where we omitted the argument and k' is the complementary modulus: $k'=\sqrt{1-k^2}$.

In this paper, a,b,c are always positive, p,q are always real, and all results are extendible by analytic continuation. The letters DP, ET I, OB, and VD refer to the references given at the end of the paper.

Part I. One-Dimensional Inverse Laplace Transforms

1. Inversion Formulas for $K(k)$

	$\int_0^\infty e^{-pt}f(t)dt$		$f(t)$	
1.1	$\frac{1}{p}K\left(\frac{a}{p}\right)$	$p>a$	$\frac{\pi}{2}I_0^2\left(\frac{a}{2}t\right)$	ET I 299 (1), OB 394 (17. 1)
1.2	$K\left(\frac{a}{p}\right)-\frac{\pi}{2}$	$p>a$	$\frac{\pi}{2}aI_0\left(\frac{a}{2}t\right)I_1\left(\frac{a}{2}t\right)$	ET I 299 (2), OB 394 (17.2)
1.3	$p\left[K\left(\frac{a}{p}\right)-\frac{\pi}{2}\right]$	$p>a$	$\frac{\pi}{8}a^2\left[I_0^2\left(\frac{a}{2}t\right)+2I_1^2\left(\frac{a}{2}t\right)+I_0\left(\frac{a}{2}t\right)I_2\left(\frac{a}{2}t\right)\right]$	ET I 299 (3), OB 394 (17. 4)
1.4	$\frac{1}{p+a}K\left(\frac{p-a}{p+a}\right)$	$p>0$	$\frac{1}{2}I_0\left(\frac{a}{2}t\right)K_0\left(\frac{a}{2}t\right)$	
1.5	$\frac{1}{\sqrt{p+a}}K\left(\sqrt{\frac{2a}{p+a}}\right)$	$p>a$	$\frac{\sqrt{\pi}}{2\sqrt{t}}I_0(at)$	OB 395 (17. 13)
1.6	$\frac{1}{\sqrt{p+a}}K\left(\sqrt{\frac{p-a}{p+a}}\right)$	$p>-a$	$\frac{1}{2\sqrt{\pi t}}K_0(at)$	

[4] Jahnke, Emde, and Lösch, Tables of Higher Functions (McGraw-Hill Book Co., New York 1960), p. 67.

1.7	$\frac{1}{p}K\left(\sqrt{1-\frac{a^2}{p^2}}\right)$ $\quad p>0$	$I_0\left(\frac{a}{2}t\right)K_0\left(\frac{a}{2}t\right)$	OB 395 (17.16)
1.8	$\frac{1}{\sqrt{p+a}+\sqrt{2a}}K\left(\frac{\sqrt{p+a}-\sqrt{2a}}{\sqrt{p+a}+\sqrt{2a}}\right)$ $\quad p>-a$	$\frac{1}{4\sqrt{\pi t}}K_0(at)$	
1.9	$\frac{1}{\sqrt{p^2+a^2}}K\left(\frac{p}{\sqrt{p^2+a^2}}\right)$ $\quad p>0$	$-\frac{\pi}{2}J_0\left(\frac{a}{2}t\right)Y_0\left(\frac{a}{2}t\right)$	OB 396 (17.18)
1.10	$\frac{1}{\sqrt{p^2+a^2}}K\left(\frac{a}{\sqrt{p^2+a^2}}\right)$ $\quad p>0$	$\frac{\pi}{2}J_0^2\left(\frac{a}{2}t\right)$	ET I 300 (8), OB 395 (17.10)
1.11	$\frac{\pi}{2}-\frac{p}{\sqrt{p^2+a^2}}K\left(\frac{a}{\sqrt{p^2+a^2}}\right)$ $\quad p>0$	$\frac{\pi}{2}aJ_0\left(\frac{a}{2}t\right)J_1\left(\frac{a}{2}t\right)$	OB 397 (17.21)
1.12	$p\left[\frac{\pi}{2}-\frac{p}{\sqrt{p^2+a^2}}K\left(\frac{a}{\sqrt{p^2+a^2}}\right)\right]$ $\quad p>0$	$\frac{\pi}{8}a^2\left[J_0^2\left(\frac{a}{2}t\right)-2J_1^2\left(\frac{a}{2}t\right)-J_0\left(\frac{a}{2}t\right)J_2\left(\frac{a}{2}t\right)\right]$	
1.13	$\frac{1}{(p+\sqrt{p^2-a^2})^{1/2}}K\left(\frac{a}{p+\sqrt{p^2-a^2}}\right)$ $\quad p>a$	$\frac{\sqrt{\pi}}{2\sqrt{2t}}I_0(at)$	
1.14	$\frac{1}{(p+\sqrt{p^2-a^2})^{1/2}}K\left(\left[\frac{2\sqrt{p^2-a^2}}{p+\sqrt{p^2-a^2}}\right]^{1/2}\right)$ $\quad p>-a$	$\frac{1}{\sqrt{2\pi t}}K_0(at)$	
1.15	$\frac{1}{\sqrt{p^2+(a+b)^2}}K\left(\left[\frac{p^2+(a-b)^2}{p^2+(a+b)^2}\right]^{1/2}\right)$ $\quad p>0$	$-\frac{\pi}{4}[J_0(at)Y_0(bt)+Y_0(at)J_0(bt)]$	OB 396 (17.19)
1.16	$\frac{1}{\sqrt{p^2-(a-b)^2}}K\left(\left[\frac{p^2-(a+b)^2}{p^2-(a-b)^2}\right]^{1/2}\right)$ $\quad p>\|a-b\|$	$\frac{1}{2}[I_0(at)K_0(bt)+K_0(at)I_0(bt)]$	OB 395 (17.17)

1. 17	$\dfrac{1}{\sqrt{p^2+(a+b)^2}}K\left(\dfrac{2\sqrt{ab}}{\sqrt{p^2+(a+b)^2}}\right)$ $\quad p>0$	$\dfrac{\pi}{2}J_0(at)J_0(bt)$	OB 395 (17.14)
1. 18	$\dfrac{\pi}{2}-\dfrac{p}{\sqrt{p^2+(a+b)^2}}K\left(\dfrac{2\sqrt{ab}}{\sqrt{p^2+(a+b)^2}}\right)$ $\quad p>0$	$\dfrac{\pi}{2}[aJ_1(at)J_0(bt)+bJ_0(at)J_1(bt)]$	
1. 19	$p\left[\dfrac{\pi}{2}-\dfrac{p}{\sqrt{p^2+(a+b)^2}}K\left(\dfrac{2\sqrt{ab}}{\sqrt{p^2+(a+b)^2}}\right)\right]$ $\quad p>0$	$\dfrac{\pi}{2}[(a^2+b^2)J_0(at)J_0(bt)-2abJ_1(at)J_1(bt)$ $-at^{-1}J_1(at)J_0(bt)-bt^{-1}J_0(at)J_1(bt)]$	
1. 20	$\dfrac{1}{\sqrt{p^2-(a-b)^2}}K\left(\dfrac{2\sqrt{ab}}{\sqrt{p^2-(a-b)^2}}\right)$ $\quad p>a+b$	$\dfrac{\pi}{2}I_0(at)I_0(bt)$	
1. 21	$\dfrac{p}{\sqrt{p^2-(a-b)^2}}K\left(\dfrac{2\sqrt{ab}}{\sqrt{p^2-(a-b)^2}}\right)-\dfrac{\pi}{2}$ $\quad p>a+b$	$\dfrac{\pi}{2}[aI_1(at)I_0(bt)+bI_0(at)I_1(bt)]$	
1. 22	$p\left[\dfrac{p}{\sqrt{p^2-(a-b)^2}}K\left(\dfrac{2\sqrt{ab}}{\sqrt{p^2-(a-b)^2}}\right)-\dfrac{\pi}{2}\right]$ $\quad p>a+b$	$\dfrac{\pi}{2}[(a^2+b^2)I_0(at)I_0(bt)+2abI_1(at)I_1(bt)$ $-at^{-1}I_1(at)I_0(bt)-bt^{-1}I_0(at)I_1(bt)]$	
1. 23	$(p^2+a^2)^{-1/4}K\left(\left[\dfrac{1}{2}\left\{1+\dfrac{p}{\sqrt{p^2+a^2}}\right\}\right]^{1/2}\right)$ $\quad p>0$	$-\dfrac{\sqrt{\pi}}{2\sqrt{t}}Y_0(at)$	
1. 24	$(p^2+a^2)^{-1/4}K\left(\left[\dfrac{1}{2}\left\{1-\dfrac{p}{\sqrt{p^2+a^2}}\right\}\right]^{1/2}\right)$ $\quad p>0$	$\dfrac{\sqrt{\pi}}{2\sqrt{t}}J_0(at)$	OB 396 (17. 20)
1. 25	$(p^4+4a^4)^{-1/4}K\left(\left[\dfrac{1}{2}\left\{1-\dfrac{p^2}{\sqrt{p^4+4a^4}}\right\}\right]^{1/2}\right)$ $\quad p>a$	$\dfrac{\pi}{2}I_0(at)J_0(at)$	

1. Inversion Formulas for $K(k)$—Continued

1.26	$p(p^4+4a^4)^{-1/4} \times K\left(\left[\frac{1}{2}\left\{1-\frac{p^2}{\sqrt{p^4+4a^4}}\right\}\right]^{1/2}\right)-\frac{\pi}{2}$ $\quad p>a$	$\frac{\pi}{2}a[I_1(at)J_0(at)-I_0(at)J_1(at)]$
1.27	$\frac{1}{[(p^2-a^2+b^2)^2+4a^2b^2]^{1/4}} \times K\left(\left[\frac{1}{2}\left\{1-\frac{p^2-a^2+b^2}{\sqrt{(p^2-a^2+b^2)^2+4a^2b^2}}\right\}\right]^{1/2}\right)$ $\quad p>a$	$\frac{\pi}{2}I_0(at)J_0(bt)$
1.28	$\frac{p}{[(p^2-a^2+b^2)^2+4a^2b^2]^{1/4}} \times K\left(\left[\frac{1}{2}\left\{1-\frac{p^2-a^2+b^2}{\sqrt{(p^2-a^2+b^2)^2+4a^2b^2}}\right\}\right]^{1/2}\right) -\frac{\pi}{2}$ $\quad p>a$	$\frac{\pi}{2}[aI_1(at)J_0(bt)-bI_0(at)J_1(bt)]$

2. Inversion Formulas for $E(k)$

	$\int_0^\infty e^{-pt}f(t)dt$		$f(t)$
2.1	$\frac{\pi}{2}-E\left(\frac{a}{p}\right)$	$p>a$	$\frac{\pi}{4}a\left[at\left\{I_0^2\left(\frac{a}{2}t\right)-I_1^2\left(\frac{a}{2}t\right)\right\} -2I_0\left(\frac{a}{2}t\right)I_1\left(\frac{a}{2}t\right)\right]$
2.2	$p\left[\frac{\pi}{2}-E\left(\frac{a}{p}\right)\right]$	$p>a$	$\frac{\pi}{2}at^{-1}I_0\left(\frac{a}{2}t\right)I_1\left(\frac{a}{2}t\right)$ ET I 299 (4), OB 394 (17.3)
2.3	$\frac{1}{p^2-a^2}E\left(\frac{a}{p}\right)$	$p>a$	$\frac{\pi}{2}tI_0^2\left(\frac{a}{2}t\right)$
2.4	$\frac{1}{p(p^2-a^2)}E\left(\frac{a}{p}\right)$	$p>a$	$\frac{\pi}{4}t^2\left[I_0^2\left(\frac{a}{2}t\right)-I_1^2\left(\frac{a}{2}t\right)\right]$

2. Inversion Formulas for $E(k)$—Continued

2.5	$\frac{p}{p^2-a^2}E\left(\frac{a}{p}\right)$	$p>a$	$\frac{\pi}{2}I_0\left(\frac{a}{2}t\right)\left[I_0\left(\frac{a}{2}t\right)+atI_1\left(\frac{a}{2}t\right)\right]$ ET I 299 (6), OB 394 (17.6)
2.6	$\frac{p^2}{p^2-a^2}E\left(\frac{a}{p}\right)-\frac{\pi}{2}$	$p>a$	$\frac{\pi}{4}a\left[at\left\{I_0^2\left(\frac{a}{2}t\right)+I_1^2\left(\frac{a}{2}t\right)\right\}+2I_0\left(\frac{a}{2}t\right)I_1\left(\frac{a}{2}t\right)\right]$
2.7	$\frac{1}{(p-a)\sqrt{p+a}}E\left(\sqrt{\frac{2a}{p+a}}\right)$	$p>a$	$\sqrt{\pi t}\,I_0(at)$
2.8	$\frac{p}{(p-a)\sqrt{p+a}}E\left(\sqrt{\frac{2a}{p+a}}\right)$	$p>a$	$\frac{\sqrt{\pi}}{2\sqrt{t}}[I_0(at)+2atI_1(at)]$
2.9	$\frac{1}{\sqrt{p^2+a^2}}E\left(\frac{a}{\sqrt{p^2+a^2}}\right)$	$p>0$	$\frac{\pi}{2}J_0\left(\frac{a}{2}t\right)\left[J_0\left(\frac{a}{2}t\right)-atJ_1\left(\frac{a}{2}t\right)\right]$ ET I 300 (7), OB 395 (17.11)
2.10	$\frac{1}{p\sqrt{p^2+a^2}}E\left(\frac{a}{\sqrt{p^2+a^2}}\right)$	$p>0$	$\frac{\pi}{2}tJ_0^2\left(\frac{a}{2}t\right)$
2.11	$\frac{1}{p^2\sqrt{p^2+a^2}}E\left(\frac{a}{\sqrt{p^2+a^2}}\right)$	$p>0$	$\frac{\pi}{4}t^2\left[J_0^2\left(\frac{a}{2}t\right)+J_1^2\left(\frac{a}{2}t\right)\right]$
2.12	$\frac{\pi}{2}-\frac{p}{\sqrt{p^2+a^2}}E\left(\frac{a}{\sqrt{p^2+a^2}}\right)$	$p>0$	$\frac{\pi}{4}a\left[2J_0\left(\frac{a}{2}t\right)J_1\left(\frac{a}{2}t\right)+at\left\{J_0^2\left(\frac{a}{2}t\right)-J_1^2\left(\frac{a}{2}t\right)\right\}\right]$
2.13	$\frac{\pi}{2}-\frac{\sqrt{p^2+a^2}}{p}E\left(\frac{a}{\sqrt{p^2+a^2}}\right)$	$p>0$	$\frac{\pi}{4}a\left[2J_0\left(\frac{a}{2}t\right)J_1\left(\frac{a}{2}t\right)-at\left\{J_0^2\left(\frac{a}{2}t\right)+J_1^2\left(\frac{a}{2}t\right)\right\}\right]$
2.14	$\sqrt{p^2+a^2}\,E\left(\frac{a}{\sqrt{p^2+a^2}}\right)-\frac{\pi}{2}p$	$p>0$	$\frac{\pi}{2}at^{-1}J_0\left(\frac{a}{2}t\right)J_1\left(\frac{a}{2}t\right)$ OB 396 (17.22)

2. Inversion Formulas for $E(k)$—Continued

2.15	$\sqrt{p^2+(a+b)^2}\,E\left(\frac{2\sqrt{ab}}{\sqrt{p^2+(a+b)^2}}\right)-\frac{\pi}{2}p$ $\quad p>0$	$\frac{\pi}{2}t^{-1}[aJ_1(at)J_0(bt)+bJ_0(at)J_1(bt)]$
2.16	$\frac{1}{[p^2+(a-b)^2]\sqrt{p^2+(a+b)^2}}$ $\times E\left(\frac{2\sqrt{ab}}{\sqrt{p^2+(a+b)^2}}\right)$ $\quad p>0$	$\frac{\pi}{2(a^2-b^2)}t[aJ_1(at)J_0(bt)-bJ_0(at)J_1(bt)]$
2.17	$\frac{p}{[p^2+(a-b)^2]\sqrt{p^2+(a+b)^2}}$ $\times E\left(\frac{2\sqrt{ab}}{\sqrt{p^2+(a+b)^2}}\right)$ $\quad p>0$	$\frac{\pi}{2}tJ_0(at)J_0(bt)$
2.18	$\frac{p^2}{[p^2+(a-b)^2]\sqrt{p^2+(a+b)^2}}$ $\times E\left(\frac{2\sqrt{ab}}{\sqrt{p^2+(a+b)^2}}\right)$ $\quad p>0$	$\frac{\pi}{2}[J_0(at)J_0(bt)-atJ_1(at)J_0(bt)$ $-btJ_0(at)J_1(bt)]$
2.19	$\frac{p^2+a^2-b^2}{[p^2+(a-b)^2]\sqrt{p^2+(a+b)^2}}$ $\times E\left(\frac{2\sqrt{ab}}{\sqrt{p^2+(a+b^2)}}\right)$ $\quad p>0$	$\frac{\pi}{2}J_0(bt)[J_0(at)-2atJ_1(at)]$
2.20	$\frac{\pi}{2}p-\sqrt{p^2-(a-b)^2}\,E\left(\frac{2\sqrt{ab}}{\sqrt{p^2-(a-b)^2}}\right)$ $\quad p>a+b$	$\frac{\pi}{2}t^{-1}[aI_1(at)I_0(bt)+bI_0(at)I_1(bt)]$

2. Inversion Formulas for *E(k)*—Continued

2.21	$\dfrac{1}{[p^2-(a+b)^2]\sqrt{p^2-(a-b)^2}} \times E\left(\dfrac{2\sqrt{ab}}{\sqrt{p^2-(a-b)^2}}\right)$ $p>a+b$	$\dfrac{\pi}{2(a^2-b^2)}\,t\,[aI_1(at)I_0(bt)-bI_0(at)I_1(bt)]$
2.22	$\dfrac{p}{[p^2-(a+b)^2]\sqrt{p^2-(a-b)^2}} \times E\left(\dfrac{2\sqrt{ab}}{\sqrt{p^2-(a-b)^2}}\right)$ $p>a+b$	$\dfrac{\pi}{2}\,tI_0(at)I_0(bt)$
2.23	$\dfrac{p^2}{[p^2-(a+b)^2]\sqrt{p^2-(a-b)^2}} \times E\left(\dfrac{2\sqrt{ab}}{\sqrt{p^2-(a-b)^2}}\right)$ $p>a+b$	$\dfrac{\pi}{2}[I_0(at)I_0(bt)+atI_1(at)I_0(bt)$ $+btI_0(at)I_1(bt)]$
2.24	$\dfrac{p^2+a^2-b^2}{[p^2-(a+b)^2]\sqrt{p^2-(a-b)^2}} \times E\left(\dfrac{2\sqrt{ab}}{\sqrt{p^2-(a-b)^2}}\right)$ $p>a+b$	$\dfrac{\pi}{2}I_0(bt)[I_0(at)+2atI_1(at)]$

3. Inversion Formulas for *B(k)*

	$\int_0^\infty e^{-pt}f(t)dt$	$f(t)$
3.1	$\dfrac{1}{p}B\left(\dfrac{a}{p}\right)$ $p>a$	$\dfrac{\pi}{4}\left[I_0^2\left(\dfrac{a}{2}t\right)-I_1^2\left(\dfrac{a}{2}t\right)\right]$
3.2	$B\left(\dfrac{a}{p}\right)-\dfrac{\pi}{4}$ $p>a$	$\dfrac{\pi}{2}t^{-1}I_1^2\left(\dfrac{a}{2}t\right)$

3.3	$p\left[B\left(\frac{a}{p}\right)-\frac{\pi}{4}\right]$	$p>a$	$\frac{\pi}{2}I_1\left(\frac{a}{2}t\right)\left[at^{-1}I_0\left(\frac{a}{2}t\right)-3t^{-2}I_1\left(\frac{a}{2}t\right)\right]$	
3.4	$\frac{1}{p^2-a^2}B\left(\frac{a}{p}\right)$	$p>a$	$\frac{\pi}{4}t\left[I_0^2\left(\frac{a}{2}t\right)+I_1^2\left(\frac{a}{2}t\right)\right]$	
3.5	$\frac{1}{p(p^2-a^2)}B\left(\frac{a}{p}\right)$	$p>a$	$\frac{\pi}{2a}tI_0\left(\frac{a}{2}t\right)I_1\left(\frac{a}{2}t\right)$	
3.6	$\frac{p}{p^2-a^2}B\left(\frac{a}{p}\right)$	$p>a$	$\frac{\pi}{4}\left[I_0^2\left(\frac{a}{2}t\right)-I_1^2\left(\frac{a}{2}t\right)+2atI_0\left(\frac{a}{2}t\right)I_1\left(\frac{a}{2}t\right)\right]$	
3.7	$\frac{p^2}{p^2-a^2}B\left(\frac{a}{p}\right)-\frac{\pi}{4}$	$p>a$	$\frac{\pi}{4}\left[a^2tI_0^2\left(\frac{a}{2}t\right)+(a^2t+2t^{-1})I_1^2\left(\frac{a}{2}t\right)\right]$	
3.8	$\frac{1}{\sqrt{p^2+a^2}}B\left(\frac{a}{\sqrt{p^2+a^2}}\right)$	$p>0$	$\frac{\pi}{4}\left[J_0^2\left(\frac{a}{2}t\right)-J_1^2\left(\frac{a}{2}t\right)\right]$	DP 368 (31.1)
3.9	$\frac{1}{p\sqrt{p^2+a^2}}B\left(\frac{a}{\sqrt{p^2+a^2}}\right)$	$p>0$	$\frac{\pi}{4}t\left[J_0^2\left(\frac{a}{2}t\right)+J_1^2\left(\frac{a}{2}t\right)\right]$	
3.10	$\frac{\pi}{4}-\frac{p}{\sqrt{p^2+a^2}}B\left(\frac{a}{\sqrt{p^2+a^2}}\right)$	$p>0$	$\frac{\pi}{2}J_1\left(\frac{a}{2}t\right)\left[aJ_0\left(\frac{a}{2}t\right)-t^{-1}J_1\left(\frac{a}{2}t\right)\right]$	
3.11	$\frac{1}{\sqrt{p^2+(a+b)^2}}B\left(\frac{2\sqrt{ab}}{\sqrt{p^2+(a+b)^2}}\right)$	$p>0$	$\frac{\pi}{4}[J_0(at)J_0(bt)-J_1(at)J_1(bt)]$	
3.12	$\frac{\pi}{4}-\frac{p}{\sqrt{p^2+(a+b)^2}}B\left(\frac{2\sqrt{ab}}{\sqrt{p^2+(a+b)^2}}\right)$	$p>0$	$\frac{\pi}{4}[(a+b)\{J_0(at)J_1(bt)+J_1(at)J_0(bt)\}$ $-2t^{-1}J_1(at)J_1(bt)]$	
3.13	$\frac{p}{[p^2+(a-b)^2]\sqrt{p^2+(a+b)^2}}$ $\times B\left(\frac{2\sqrt{ab}}{\sqrt{p^2+(a+b)^2}}\right)$	$p>0$	$\frac{\pi}{4}t[J_0(at)J_0(bt)+J_1(at)J_1(bt)]$	

3.14	$\frac{1}{\sqrt{p^2-(a-b)^2}}B\left(\frac{2\sqrt{ab}}{\sqrt{p^2-(a-b)^2}}\right)$ $p>a+b$	$\frac{\pi}{4}[I_0(at)I_0(bt)-I_1(at)I_1(bt)]$
3.15	$\frac{p}{\sqrt{p^2-(a-b)^2}}B\left(\frac{2\sqrt{ab}}{\sqrt{p^2-(a-b)^2}}\right)-\frac{\pi}{4}$ $p>a+b$	$\frac{\pi}{4}[(b-a)\{I_0(at)I_1(bt)-I_1(at)I_0(bt)\}$ $+2t^{-1}I_1(at)I_1(bt)]$
3.16	$\frac{1}{[p^2-(a+b)^2]\sqrt{p^2-(a-b)^2}}$ $\times B\left(\frac{2\sqrt{ab}}{\sqrt{p^2-(a-b)^2}}\right)$ $p>a+b$	$\frac{\pi}{4(a+b)}t[I_0(at)I_1(bt)+I_1(at)I_0(bt)]$
3.17	$\frac{p}{[p^2-(a+b)^2]\sqrt{p^2-(a-b)^2}}$ $\times B\left(\frac{2\sqrt{ab}}{\sqrt{p^2-(a-b)^2}}\right)$ $p>a+b$	$\frac{\pi}{4}t[I_0(at)I_0(bt)+I_1(at)I_1(bt)]$
3.18	$\frac{(p^2+a^2)^{-1/4}}{p+\sqrt{p^2+a^2}}B\left(\left[\frac{1}{2}\left\{1-\frac{p}{\sqrt{p^2+a^2}}\right\}\right]^{1/2}\right)$ $p>0$	$\frac{\sqrt{\pi}}{2a}t^{-1/2}J_1(at)$
3.19	$\frac{p(p^2+a^2)^{-1/4}}{p+\sqrt{p^2+a^2}}B\left(\left[\frac{1}{2}\left\{1-\frac{p}{\sqrt{p^2+a^2}}\right\}\right]^{1/2}\right)$ $p>0$	$\frac{\sqrt{\pi}}{4a}t^{-3/2}[2atJ_0(at)-3J_1(at)]$
3.20	$\frac{(p^4+4a^4)^{-1/4}}{p^2+\sqrt{p^4+4a^4}}B\left(\left[\frac{1}{2}\left\{1-\frac{p^2}{\sqrt{p^4+4a^4}}\right\}\right]^{1/2}\right)$ $p>a$	$\frac{\pi}{4a^2}I_1(at)J_1(at)$
3.21	$\frac{p(p^4+4a^4)^{-1/4}}{p^2+\sqrt{p^4+4a^4}}B\left(\left[\frac{1}{2}\left\{1-\frac{p^2}{\sqrt{p^4+4a^4}}\right\}\right]^{1/2}\right)$ $p>a$	$\frac{\pi}{4a^2}[aI_0(at)J_1(at)+aI_1(at)J_0(at)$ $-2t^{-1}I_1(at)J_1(at)]$

3. Inversion Formulas for $B(k)$—Continued

3.22	$\dfrac{1}{[(p^2-a^2+b^2)^2+4a^2b^2]^{1/4}} \times \dfrac{1}{p^2-a^2+b^2+\sqrt{(p^2-a^2+b^2)^2+4a^2b^2}} \times B\left(\left[\dfrac{1}{2}\left\{1-\dfrac{p^2-a^2+b^2}{\sqrt{(p^2-a^2+b^2)^2+4a^2b^2}}\right\}\right]^{1/2}\right)$ $\quad p>a$	$\dfrac{\pi}{4ab} I_1(at)J_1(bt)$
3.23	$\dfrac{p}{[(p^2-a^2+b^2)^2+4a^2b^2]^{1/4}} \times \dfrac{1}{p^2-a^2+b^2+\sqrt{(p^2-a^2+b^2)^2+4a^2b^2}} \times B\left(\left[\dfrac{1}{2}\left\{1-\dfrac{p^2-a^2+b^2}{\sqrt{(p^2-a^2+b^2)^2+4a^2b^2}}\right\}\right]^{1/2}\right)$ $\quad p>a$	$\dfrac{\pi}{4ab}[aI_0(at)J_1(bt)+bI_1(at)J_0(bt) -2t^{-1}I_1(at)J_1(bt)]$

4. Inversion Formulas for $C(k)$

	$\int_0^\infty e^{-pt}f(t)dt$		$f(t)$
4.1	$\dfrac{1}{p}C\left(\dfrac{a}{p}\right)$	$p>a$	$\dfrac{\pi}{4a^2}\left[a^2\left\{I_0^2\left(\dfrac{a}{2}t\right)+I_1^2\left(\dfrac{a}{2}t\right)\right\}+12t^{-2}I_1^2\left(\dfrac{a}{2}t\right) -6at^{-1}I_0\left(\dfrac{a}{2}t\right)I_1\left(\dfrac{a}{2}t\right)\right]$
4.2	$\dfrac{1}{p^2}C\left(\dfrac{a}{p}\right)$	$p>a$	$\dfrac{\pi}{2a^2}I_1\left(\dfrac{a}{2}t\right)\left[aI_0\left(\dfrac{a}{2}t\right)-2t^{-1}I_1\left(\dfrac{a}{2}t\right)\right]$
4.3	$\dfrac{1}{p^3}C\left(\dfrac{a}{p}\right)$	$p>a$	$\dfrac{\pi}{2a^2}I_1^2\left(\dfrac{a}{2}t\right)$
4.4	$\dfrac{1}{(p+a)^{3/2}}C\left(\sqrt{\dfrac{2a}{p+a}}\right)$	$p>a$	$\dfrac{\sqrt{\pi}}{4a}t^{-1/2}I_1(at)$
4.5	$\dfrac{p}{(p+a)^{3/2}}C\left(\sqrt{\dfrac{2a}{p+a}}\right)$	$p>a$	$\dfrac{\sqrt{\pi}}{8a}t^{-3/2}[2atI_0(at)-3I_1(at)]$

4.6	$\frac{1}{(p^2+a^2)^{3/2}}C\left(\frac{a}{\sqrt{p^2+a^2}}\right)$	$p>0$	$\frac{\pi}{2a^2}J_1^2\left(\frac{a}{2}t\right)$	DP 368 (31.2)
4.7	$\frac{p}{(p^2+a^2)^{3/2}}C\left(\frac{a}{\sqrt{p^2+a^2}}\right)$	$p>0$	$\frac{\pi}{2a^2}J_1\left(\frac{a}{2}t\right)\left[aJ_0\left(\frac{a}{2}t\right)-2t^{-1}J_1\left(\frac{a}{2}t\right)\right]$	
4.8	$\frac{p^2}{(p^2+a^2)^{3/2}}C\left(\frac{a}{\sqrt{p^2+a^2}}\right)$	$p>0$	$\frac{\pi}{4a^2}\left[a^2\left\{J_0^2\left(\frac{a}{2}t\right)-J_1^2\left(\frac{a}{2}t\right)\right\}+12t^{-2}J_1^2\left(\frac{a}{2}t\right)-6at^{-1}J_0\left(\frac{a}{2}t\right)J_1\left(\frac{a}{2}t\right)\right]$	
4.9	$\frac{1}{(p+\sqrt{p^2-a^2})^{3/2}}C\left(\left[\frac{2\sqrt{p^2-a^2}}{p+\sqrt{p^2-a^2}}\right]^{1/2}\right)$	$p>-a$	$\frac{1}{\sqrt{2\pi}}\sqrt{t}K_0(at)$	
4.10	$\frac{p}{(p+\sqrt{p^2-a^2})^{3/2}}C\left(\left[\frac{2\sqrt{p^2-a^2}}{p+\sqrt{p^2-a^2}}\right]^{1/2}\right)$	$p>-a$	$\frac{1}{2\sqrt{2\pi t}}[K_0(at)-2atK_1(at)]$	
4.11	$\frac{1}{[p^2+(a+b)^2]^{3/2}}C\left(\frac{2\sqrt{ab}}{\sqrt{p^2+(a+b)^2}}\right)$	$p>0$	$\frac{\pi}{8ab}J_1(at)J_1(bt)$	
4.12	$\frac{p}{[p^2+(a+b)^2]^{3/2}}C\left(\frac{2\sqrt{ab}}{\sqrt{p^2+(a+b)^2}}\right)$	$p>0$	$\frac{\pi}{8ab}[aJ_0(at)J_1(bt)+bJ_1(at)J_0(bt)-2t^{-1}J_1(at)J_1(bt)]$	
4.13	$\frac{p^2}{[p^2+(a+b)^2]^{3/2}}C\left(\frac{2\sqrt{ab}}{\sqrt{p^2+(a+b)^2}}\right)$	$p>0$	$\frac{\pi}{8ab}[2abJ_0(at)J_0(bt)-(a^2+b^2)J_1(at)J_1(bt)-3t^{-1}\{aJ_0(at)J_1(bt)+bJ_1(at)J_0(bt)\}+6t^{-2}J_1(at)J_1(bt)]$	
4.14	$\frac{1}{[p^2-(a-b)^2]^{3/2}}C\left(\frac{2\sqrt{ab}}{\sqrt{p^2-(a-b)^2}}\right)$	$p>a+b$	$\frac{\pi}{8ab}I_1(at)I_1(bt)$	

4. Inversion Formulas for $C(k)$—Continued

4.15	$\frac{p}{[p^2-(a-b)^2]^{3/2}} C\left(\frac{2\sqrt{ab}}{\sqrt{p^2-(a-b)^2}}\right)$ $\quad p>a+b$	$\frac{\pi}{8ab}[aI_0(at)I_1(bt)+bI_1(at)I_0(bt)$ $-2t^{-1}I_1(at)I_1(bt)]$
4.16	$\frac{p^2}{[p^2-(a-b)^2]^{3/2}} C\left(\frac{2\sqrt{ab}}{\sqrt{p^2-(a-b)^2}}\right)$ $\quad p>a+b$	$\frac{\pi}{8ab}[2abI_0(at)I_0(bt)+(a^2+b^2)I_1(at)I_1(bt)$ $-3t^{-1}\{aI_0(at)I_1(bt)+bI_1(at)I_0(bt)\}$ $+6t^{-2}I_1(at)I_1(bt)]$

5. Inversion Formulas for $D(k)$

	$\int_0^\infty e^{-pt}f(t)\,dt$		$f(t)$	
5.1	$\frac{1}{p}D\left(\frac{a}{p}\right)$	$p>a$	$\frac{\pi}{4}\left[I_0^2\left(\frac{a}{2}t\right)+I_1^2\left(\frac{a}{2}t\right)\right]$	
5.2	$\frac{1}{p^2}D\left(\frac{a}{p}\right)$	$p>a$	$\frac{\pi}{4}t\left[I_0^2\left(\frac{a}{2}t\right)-I_1^2\left(\frac{a}{2}t\right)\right]$	
5.3	$D\left(\frac{a}{p}\right)-\frac{\pi}{4}$	$p>a$	$\frac{\pi}{2}I_1\left(\frac{a}{2}t\right)\left[aI_0\left(\frac{a}{2}t\right)-t^{-1}I_1\left(\frac{a}{2}t\right)\right]$	
5.4	$\frac{1}{(p+a)^{3/2}}D\left(\sqrt{\frac{p-a}{p+a}}\right)$	$p>-a$	$\sqrt{\frac{t}{\pi}}K_0(at)$	
5.5	$\frac{p}{(p+a)^{3/2}}D\left(\sqrt{\frac{p-a}{p+a}}\right)$	$p>-a$	$\frac{1}{2\sqrt{\pi t}}[K_0(at)-2atK_1(at)]$	
5.6	$\frac{p}{(p^2+a^2)^{3/2}}D\left(\frac{p}{\sqrt{p^2+a^2}}\right)$	$p>0$	$-\frac{\pi}{2}tJ_0\left(\frac{a}{2}t\right)Y_0\left(\frac{a}{2}t\right)$	
5.7	$\frac{1}{\sqrt{p^2+a^2}}D\left(\frac{a}{\sqrt{p^2+a^2}}\right)$	$p>0$	$\frac{\pi}{4}\left[J_0^2\left(\frac{a}{2}t\right)+J_1^2\left(\frac{a}{2}t\right)\right]$	DP 369 (31.3)
5.8	$\frac{\pi}{4}-\frac{p}{\sqrt{p^2+a^2}}D\left(\frac{a}{\sqrt{p^2+a^2}}\right)$	$p>0$	$\frac{\pi}{2}t^{-1}J_1^2\left(\frac{a}{2}t\right)$	

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5.9	$p\left[\frac{\pi}{4}-\frac{p}{\sqrt{p^2+a^2}}D\left(\frac{a}{\sqrt{p^2+a^2}}\right)\right]$	$p>0$	$\frac{\pi}{2}t^{-2}J_1\left(\frac{a}{2}t\right)\left[atJ_0\left(\frac{a}{2}t\right)-3J_1\left(\frac{a}{2}t\right)\right]$
5.10	$\frac{1}{(p^2+a^2)^{3/2}}D\left(\frac{a}{\sqrt{p^2+a^2}}\right)$	$p>0$	$\frac{\pi}{2a}tJ_0\left(\frac{a}{2}t\right)J_1\left(\frac{a}{2}t\right)$
5.11	$\frac{p}{(p^2+a^2)^{3/2}}D\left(\frac{a}{\sqrt{p^2+a^2}}\right)$	$p>0$	$\frac{\pi}{4}t\left[J_0^2\left(\frac{a}{2}t\right)-J_1^2\left(\frac{a}{2}t\right)\right]$
5.12	$\frac{p^2}{(p^2+a^2)^{3/2}}D\left(\frac{a}{\sqrt{p^2+a^2}}\right)$	$p>0$	$\frac{\pi}{4}\left[J_0^2\left(\frac{a}{2}t\right)+J_1^2\left(\frac{a}{2}t\right)-2atJ_0\left(\frac{a}{2}t\right)J_1\left(\frac{a}{2}t\right)\right]$
5.13	$\frac{\pi}{4}-\frac{p^3}{(p^2+a^2)^{3/2}}D\left(\frac{a}{\sqrt{p^2+a^2}}\right)$	$p>0$	$\frac{\pi}{4}\left[a^2tJ_0^2\left(\frac{a}{2}t\right)+(2t^{-1}-a^2t)J_1^2\left(\frac{a}{2}t\right)\right]$
5.14	$\frac{1}{(p+\sqrt{p^2-a^2})^{3/2}}D\left(\frac{a}{p+\sqrt{p^2-a^2}}\right)$	$p>a$	$\frac{\sqrt{\pi}}{2a\sqrt{2}}t^{-1/2}I_1(at)$
5.15	$\frac{p}{(p+\sqrt{p^2-a^2})^{3/2}}D\left(\frac{a}{p+\sqrt{p^2-a^2}}\right)$	$p>a$	$\frac{\sqrt{\pi}}{4a\sqrt{2}}t^{-3/2}[2at\,I_0(at)-3I_1(at)]$
5.16	$\frac{1}{\sqrt{p^2+(a+b)^2}}D\left(\frac{2\sqrt{ab}}{\sqrt{p^2+(a+b)^2}}\right)$	$p>0$	$\frac{\pi}{4}[J_0(at)J_0(bt)+J_1(at)J_1(bt)]$
5.17	$\frac{\pi}{4}-\frac{p}{\sqrt{p^2+(a+b)^2}}D\left(\frac{2\sqrt{ab}}{\sqrt{p^2+(a+b)^2}}\right)$	$p>0$	$\frac{\pi}{4}[(b-a)\{J_0(at)J_1(bt)-J_1(at)J_0(bt)\}+2t^{-1}J_1(at)J_1(bt)]$
5.18	$\frac{1}{[p^2+(a+b)^2]^{3/2}}D\left(\frac{2\sqrt{ab}}{\sqrt{p^2+(a+b)^2}}\right)$	$p>0$	$\frac{\pi}{4(a+b)}t[J_0(at)J_1(bt)+J_1(at)J_0(bt)]$
5.19	$\frac{p}{[p^2+(a+b)^2]^{3/2}}D\left(\frac{2\sqrt{ab}}{\sqrt{p^2+(a+b)^2}}\right)$	$p>0$	$\frac{\pi}{4}t[J_0(at)J_0(bt)-J_1(at)J_1(bt)]$

5. Inversion Formulas for D(k)—Continued

5.20	$\frac{1}{\sqrt{p^2-(a-b)^2}}D\left(\frac{2\sqrt{ab}}{\sqrt{p^2-(a-b)^2}}\right)$ $p>a+b$	$\frac{\pi}{4}[I_0(at)I_0(bt)+I_1(at)I_1(bt)]$
5.21	$\frac{p}{\sqrt{p^2-(a-b)^2}}D\left(\frac{2\sqrt{ab}}{\sqrt{p^2-(a-b)^2}}\right)-\frac{\pi}{4}$ $p>a+b$	$\frac{\pi}{4}[(a+b)\{I_0(at)I_1(bt)+I_1(at)I_0(bt)\}$ $-2t^{-1}I_1(at)I_1(bt)]$
5.22	$\frac{p}{[p^2-(a-b)^2]^{3/2}}D\left(\frac{2\sqrt{ab}}{\sqrt{p^2-(a-b)^2}}\right)$ $p>a+b$	$\frac{\pi}{4}t[I_0(at)I_0(bt)-I_1(at)I_1(bt)]$

6. Some Inversion Formulas for Mixtures of K(k) and E(k)

	$\int_0^\infty e^{-pt}f(t)dt$	$f(t)$
6.1	$\frac{1}{p(p^2-a^2)}\left\{2pK\left(\frac{p-a}{p+a}\right)-(p+a)E\left(\frac{p-a}{p+a}\right)\right\}$ $p>0$	$tI_0\left(\frac{a}{2}t\right)K_0\left(\frac{a}{2}t\right)$
6.2	$\frac{\sqrt{p+a}}{(p^2-a^2)}\left\{pE\left(\sqrt{\frac{p-a}{p+a}}\right)-aK\left(\sqrt{\frac{p-a}{p+a}}\right)\right\}$ $p>-a$	$\frac{a}{\sqrt{\pi}}t^{1/2}K_1(at)$
6.3	$\frac{\sqrt{p+a}}{(p^2-a^2)^2}$ $\times\left\{(3p+a)K\left(\sqrt{\frac{p-a}{p+a}}\right)-4pE\left(\sqrt{\frac{p-a}{p+a}}\right)\right\}$ $p>-a$	$\frac{2}{\sqrt{\pi}}t^{3/2}K_0(at)$

6.4	$(p^2+a^2)^{-3/4} \times\left\{2E\left(\left[\frac{1}{2}\left\{1+\frac{p}{\sqrt{p^2+a^2}}\right\}\right]^{1/2}\right) -K\left(\left[\frac{1}{2}\left\{1+\frac{p}{\sqrt{p^2+a^2}}\right\}\right]^{1/2}\right)\right\}$ $p>0$	$\sqrt{\pi t}\,Y_0(at)$
6.5	$(p^2+a^2)^{-3/4} \times\left\{2E\left(\left[\frac{1}{2}\left\{1-\frac{p}{\sqrt{p^2+a^2}}\right\}\right]^{1/2}\right) -K\left(\left[\frac{1}{2}\left\{1-\frac{p}{\sqrt{p^2+a^2}}\right\}\right]^{1/2}\right)\right\}$ $p>0$	$\sqrt{\pi t}\,J_0(at)$ OB 396 (17.23)
6.6	$p\{(p^2-a^2+b^2)^2+4a^2b^2\}^{-3/4} \times\left\{2E\left(\left[\frac{1}{2}\left\{1-\frac{p^2-a^2+b^2}{\sqrt{(p^2-a^2+b^2)^2+4a^2b^2}}\right\}\right]^{1/2}\right) -K\left(\left[\frac{1}{2}\left\{1-\frac{p^2-a^2+b^2}{\sqrt{(p^2-a^2+b^2)^2+4a^2b^2}}\right\}\right]^{1/2}\right)\right\}$ $p>a$	$\frac{\pi}{2}tI_0(at)J_0(bt)$

Part II. Two-Dimensional Inverse Laplace Transforms

7. Inversion Formulas for *K(k)*

	$\int_0^\infty\int_0^\infty e^{-px-qy}f(x,y)dxdy$	$f(x,y)$
7.1	$\frac{1}{pq}K\left(\frac{1}{pq}\right)$ $p>0,\ q>0,\ pq>1$	$\frac{1}{2}\,\frac{J_0(2\sqrt{xy})}{\sqrt{x}}\overset{x}{*}\frac{I_0(2\sqrt{xy})}{\sqrt{x}}$[5] VD 248 (5), DP 464 (53.9)
7.2	$\frac{1}{pq}K\left(\frac{a}{\sqrt{pq}}\right)$ $p>0,\ q>0,\ pq>a^2$	$\frac{\pi}{2}\,{}_2F_3\left(\frac{1}{2},\frac{1}{2};1,\ 1,\ 1;\ a^2xy\right)$

[5] The sign $\overset{x}{*}$ denotes the convolution with respect to x:

$$f(x,y)\overset{x}{*}g(x,y)=\int_0^x f(\xi,y)g(x-\xi,y)d\xi.$$

7. Inversion Formulas for $K(k)$—Continued

7.3	$\frac{1}{\sqrt{pq}} K\left(\frac{a}{\sqrt{pq}}\right)$	$p>0, q>0, pq>a^2$	$\frac{1}{2\sqrt{xy}} I_0(2a\sqrt{xy})$
7.4	$\frac{1}{\sqrt{p}} K\left(\sqrt{1-\frac{q}{p}}\right)$	$p>0,\ q>0$	$\frac{1}{2\sqrt{\pi xy\,(x+y)}}$
7.5	$\frac{1}{\sqrt{q(p+q)}} K\left(\sqrt{\frac{p-q}{p+q}}\right)$	$p>0,\ q>0$	$\frac{1}{\pi\sqrt{x\,(x+y)}} K\left(\sqrt{\frac{y-x}{y+x}}\right),\quad y>x$ $0,\quad y<x$
7.6	$\frac{1}{\sqrt{q^3(p+q)}} K\left(\sqrt{\frac{p-q}{p+q}}\right)$	$p>0,\ q>0$	$\frac{2(y-x)}{\pi\sqrt{x(x+y)}} D\left(\sqrt{\frac{y-x}{y+x}}\right),\quad y>x$ $0,\quad y<x$
7.7	$\frac{1}{\sqrt{p(pq+1)}} K\left(\sqrt{\frac{2}{pq+1}}\right)$	$p>0,\ q>0,\ pq>1$	$\frac{\sqrt{\pi}}{2\sqrt{y}} J_0(\sqrt{2ixy})\, J_0(\sqrt{-2ixy})$
7.8	$\frac{1}{\sqrt{pq+a^2}} K\left(\sqrt{\frac{pq}{pq+a^2}}\right)$	$p>0,\ q>0$	$-\frac{1}{2\sqrt{xy}} Y_0\,(2a\sqrt{xy})$
7.9	$\frac{1}{\sqrt{pq}+a} K\left(\frac{\sqrt{pq}-a}{\sqrt{pq}+a}\right)$	$p>0,\ q>0$	$\frac{1}{2\pi\sqrt{xy}} K_0\,(2a\sqrt{xy})$
7.10	$\frac{1}{\sqrt{pq}+a} K\left(\frac{[4a\sqrt{pq}]^{1/2}}{\sqrt{pq}+a}\right)$	$p>0,\ q>0,\ pq>a^2$	$\frac{1}{2\sqrt{xy}} I_0\,(2a\sqrt{xy})$
7.11	$\frac{1}{\sqrt{pq+a^2}} K\left(\frac{a}{\sqrt{pq+a^2}}\right)$	$p>0,\ q>0$	$\frac{1}{2\sqrt{xy}} J_0\,(2a\sqrt{xy})$
7.12	$\frac{1}{\sqrt{pq(pq+a^2)}} K\left(\frac{a}{\sqrt{pq+a^2}}\right)$	$p>0, q>0$	$\frac{\pi}{2}\, {}_2F_3\left(\frac{1}{2}, \frac{1}{2}; 1,1,1; -a^2xy\right)$
7.13	$\frac{1}{\sqrt{p^2q^2+1}} K\left(\frac{1}{\sqrt{p^2q^2+1}}\right)$	$p>0,\ q>0$	$\frac{1}{2} \frac{J_0(2\sqrt{ixy})}{\sqrt{x}} \overset{x}{*} \frac{I_0(2\sqrt{ixy})}{\sqrt{x}}$ VD 248 (6), DP 465 (53.10)

7.14	$\dfrac{1}{\sqrt{pq+a^2}+\sqrt{pq}} K^2\left(\dfrac{a}{\sqrt{pq+a^2}+\sqrt{pq}}\right)$ $p>0,\ q>0$	$\dfrac{\pi}{8\sqrt{xy}} J_0^2(a\sqrt{xy})$
7.15	$\dfrac{1}{(\sqrt{pq+a^2}+\sqrt{pq})^{1/2}} K\left(\dfrac{a}{\sqrt{pq+a^2}+\sqrt{pq}}\right)$ $p>0,\ q>0$	$\dfrac{\pi}{2\sqrt{2}\,\Gamma^2\left(\frac{1}{4}\right)} (xy)^{-3/4} J_0(2a\sqrt{xy})$
7.16	$\dfrac{1}{\sqrt{pq+a^2}\,(\sqrt{pq+a^2}+\sqrt{pq})^{1/2}}$ $\times K\left(\dfrac{a}{\sqrt{pq+a^2}+\sqrt{pq}}\right)$ $p>0,\ q>0$	$\dfrac{\pi}{2\sqrt{2}\Gamma^2\left(\frac{3}{4}\right)} (xy)^{-1/4} J_0(2a\sqrt{xy})$
7.17	$\dfrac{(pq)^{-3/4}}{(\sqrt{pq}+\sqrt{pq+a^2})^{1/2}}$ $\times K\left(\dfrac{a}{\sqrt{pq}+\sqrt{pq+a^2}}\right)$ $p>0,\ q>0$	$\dfrac{\pi}{2\sqrt{2}}\, {}_2F_3\left(\frac{1}{4},\frac{1}{4};\ 1,1,1;-a^2xy\right)$
7.18	$\dfrac{(pq)^{-1/4}}{\sqrt{pq+a^2}\,(\sqrt{pq}+\sqrt{pq+a^2})^{1/2}}$ $\times K\left(\dfrac{a}{\sqrt{pq}+\sqrt{pq+a^2}}\right)$ $p>0,\ q>0$	$\dfrac{\pi}{2\sqrt{2}}\, {}_2F_3\left(\frac{3}{4},\frac{3}{4};\ 1,\ 1,\ 1;-a^2xy\right)$
7.19	$\dfrac{1}{\sqrt{(pq+ab+c^2)^2+(aq-bp)^2}}$ $\times K\left(\dfrac{2c\sqrt{ab}}{\sqrt{(pq+ab+c^2)^2+(aq-pb)^2}}\right)$ $p>0,\ q>0$	$\dfrac{\pi}{2} J_0(ax)\, J_0(by)\, J_0(2c\sqrt{xy})$

7.20	$\dfrac{1}{\sqrt{(pq-ab-c^2)^2-(aq-pb)^2}} \times K\left(\dfrac{2c\sqrt{ab}}{\sqrt{(pq-ab-c^2)^2-(aq-pb)^2}}\right)$ $p>a,\ q>b,\ (p-a)(q-b)>c^2$	$\dfrac{\pi}{2} I_0(ax)I_0(by)I_0(2c\sqrt{xy})$
7.21	$\dfrac{1}{[(\sqrt{pq}+a)^2+b^2]^{1/2}} \times K\left(\left[\dfrac{(\sqrt{pq}-a)^2+b^2}{(\sqrt{pq}+a)^2+b^2}\right]^{1/2}\right)$ $p>0,\ q>0$	$\dfrac{1}{2\pi\sqrt{xy}} K_0(2a\sqrt{xy}) \cos(2b\sqrt{xy})$
7.22	$\dfrac{1}{[(\sqrt{pq}+a)^2-b^2]^{1/2}} \times K\left(\left[\dfrac{(\sqrt{pq}-a)^2-b^2}{(\sqrt{pq}+a)^2-b^2}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>b^2$	$\dfrac{1}{2\pi\sqrt{xy}} K_0(2a\sqrt{xy}) \cosh(2b\sqrt{xy})$
7.23	$\dfrac{1}{[(\sqrt{pq}+a)^2+b^2]^{1/2}} \times K\left(\left[\dfrac{4a\sqrt{pq}}{(\sqrt{pq}+a)^2+b^2}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>a^2$	$\dfrac{1}{2\sqrt{xy}} I_0(2a\sqrt{xy}) \cos(2b\sqrt{xy})$
7.24	$\dfrac{1}{[(\sqrt{pq}+a)^2-b^2]^{1/2}} \times K\left(\left[\dfrac{4a\sqrt{pq}}{(\sqrt{pq}+a)^2-b^2}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>(a+b)^2$	$\dfrac{1}{2\sqrt{xy}} I_0(2a\sqrt{xy}) \cosh(2b\sqrt{xy})$
7.25	$(pq)^{-1/4} K\left(\left[\dfrac{1}{2}\left\{1 \pm \dfrac{a}{\sqrt{pq}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>a^2$	$\dfrac{1}{4\sqrt{\pi}} (xy)^{-3/4} e^{\pm 2a\sqrt{xy}}$

7.26	$(pq+a^2)^{-1/4}K\left(\left[\frac{1}{2}\left\{1\pm\frac{a}{\sqrt{pq+a^2}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0$	$\frac{1}{4\sqrt{\pi}}(xy)^{-3/4}[\cos(2a\sqrt{xy})\pm\sin(2a\sqrt{xy})]$
7.27	$p^{-1/4}K\left(\left[\frac{1}{2}\left\{1-\sqrt{\frac{q}{p}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0$	$\frac{1}{2\sqrt{2}\Gamma\left(\frac{1}{4}\right)}\left[\frac{1}{xy^3(x+y)^3}\right]^{1/4}$
7.28	$\frac{p^{-1/4}}{\sqrt{q}}K\left(\left[\frac{1}{2}\left\{1-\sqrt{\frac{q}{p}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0$	$\frac{1}{2\sqrt{2}\Gamma\left(\frac{3}{4}\right)}\left[\frac{1}{x^3y(x+y)}\right]^{1/4}$
7.29	$\frac{1}{pq}K\left(\left[\frac{1}{2}\left\{1-\sqrt{1-\frac{a^2}{pq}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>a^2$	$\frac{\pi}{2}\,{}_2F_3\left(\frac{1}{4},\frac{1}{4};1,1,1;a^2xy\right)$
7.30	$\frac{1}{\sqrt{pq(pq-a^2)}}K\left(\left[\frac{1}{2}\left\{1-\sqrt{1-\frac{a^2}{pq}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>a^2$	$\frac{\pi}{2}\,{}_2F_3\left(\frac{3}{4},\frac{3}{4};1,1,1;a^2xy\right)$
7.31	$(pq)^{-1/4}K\left(\left[\frac{1}{2}\left\{1-\sqrt{1-\frac{a^2}{pq}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>a^2$	$\frac{\pi}{2\Gamma^2\left(\frac{1}{4}\right)}(xy)^{-3/4}I_0(2a\sqrt{xy})$
7.32	$\frac{(pq)^{-1/4}}{\sqrt{pq-a^2}}K\left(\left[\frac{1}{2}\left\{1-\sqrt{1-\frac{a^2}{pq}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>a^2$	$\frac{\pi}{2\Gamma^2\left(\frac{3}{4}\right)}(xy)^{-1/4}I_0(2a\sqrt{xy})$
7.33	$\frac{1}{\sqrt{pq}}K^2\left(\left[\frac{1}{2}\left\{1-\sqrt{1-\frac{a^2}{pq}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>a^2$	$\frac{\pi}{4\sqrt{xy}}I_0^2(a\sqrt{xy})$

7. Inversion Formulas for $K(k)$—Continued

7.34	$\dfrac{1}{[(pq-a^2+b^2)^2+4a^2pq]^{1/4}}$ $\times K\left(\left[\dfrac{1}{2}\left\{1-\dfrac{pq-a^2+b^2}{\sqrt{(pq-a^2+b^2)^2+4a^2pq}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0$	$\dfrac{1}{2\sqrt{xy}}J_0(2a\sqrt{xy})\cos(2b\sqrt{xy})$
7.35	$\dfrac{1}{[(pq-a^2-b^2)^2+4a^2pq]^{1/4}}$ $\times K\left(\left[\dfrac{1}{2}\left\{1-\dfrac{pq-a^2-b^2}{\sqrt{(pq-a^2-b^2)^2+4a^2pq}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>b^2$	$\dfrac{1}{2\sqrt{xy}}J_0(2a\sqrt{xy})\cosh(2b\sqrt{xy})$

8. Inversion Formulas for $E(k)$

	$\int_0^\infty\int_0^\infty e^{-px-qy}f(x,y)dxdy$	$f(x,y)$
8.1	$\dfrac{1}{pq}E\left(\dfrac{a}{\sqrt{pq}}\right)$ $p>0,\ q>0,\ pq>a^2$	$\dfrac{\pi}{2}\,{}_2F_3\left(-\dfrac{1}{2},\dfrac{1}{2};1,1,1;a^2xy\right)$
8.2	$\dfrac{1}{pq-a^2}E\left(\dfrac{a}{\sqrt{pq}}\right)$ $p>0,\ q>0,\ pq>a^2$	$\dfrac{\pi}{2}\,{}_2F_3\left(\dfrac{1}{2},\dfrac{3}{2};1,1,1;a^2xy\right)$
8.3	$\dfrac{\sqrt{pq}}{(pq-a^2)}E\left(\dfrac{a}{\sqrt{pq}}\right)$ $p>0,\ q>0,\ pq>a^2$	$\dfrac{1}{2\sqrt{xy}}I_0(2a\sqrt{xy})+aI_1(2a\sqrt{xy})$
8.4	$\dfrac{\sqrt{p}}{(pq-a^2)\sqrt{q}}E\left(\dfrac{a}{\sqrt{pq}}\right)$ $p>0,\ q>0,\ pq>a^2$	$\sqrt{\dfrac{y}{x}}I_0(2a\sqrt{xy})$
8.5	$\dfrac{1}{q\sqrt{p}}E\left(\sqrt{1-\dfrac{q}{p}}\right)$ $v>0,\ q>0$	$\dfrac{\sqrt{x+y}}{\sqrt{\pi xy}}$
8.6	$\dfrac{1}{\sqrt{pq+a^2}}E\left(\dfrac{a}{\sqrt{pq+a^2}}\right)$ $p>0,\ q>0$	$\dfrac{1}{2\sqrt{xy}}J_0(2a\sqrt{xy})-aJ_1(2a\sqrt{xy})$
8.7	$\dfrac{1}{q\sqrt{pq+a^2}}E\left(\dfrac{a}{\sqrt{pq+a^2}}\right)$ $p>0,\ q>0$	$\sqrt{\dfrac{y}{x}}J_0(2a\sqrt{xy})$

8.8	$\dfrac{1}{\sqrt{pq(pq+a^2)}}E\left(\dfrac{a}{\sqrt{pq+a^2}}\right)$ $\quad p>0,\ q>0$	$\dfrac{\pi}{2}{}_2F_3\left(\dfrac{1}{2},\dfrac{3}{2};1,1,1;-a^2xy\right)$
8.9	$\dfrac{\sqrt{pq+a^2}}{(pq)^{3/2}}E\left(\dfrac{a}{\sqrt{pq+a^2}}\right)$ $\quad p>0,\ q>0$	$\dfrac{\pi}{2}{}_2F_3\left(-\dfrac{1}{2},\dfrac{1}{2};1,1,1;-a^2xy\right)$
8.10	$\dfrac{1}{(\sqrt{pq}-a)^2(\sqrt{pq}+a)}E\left(\dfrac{[4a\sqrt{pq}]^{1/2}}{\sqrt{pq}+a}\right)$ $\quad p>0,\ q>0,\ pq>a^2$	$2\sqrt{xy}I_0(2a\sqrt{xy})$
8.11	$\dfrac{p}{(\sqrt{pq}-a)^2(\sqrt{pq}+a)}E\left(\dfrac{[4a\sqrt{pq}]^{1/2}}{\sqrt{pq}+a}\right)$ $\quad p>0,\ q>0,\ pq>a^2$	$\sqrt{\dfrac{y}{x}}[I_0(2a\sqrt{xy})+2a\sqrt{xy}I_1(2a\sqrt{xy})]$
8.12	$\dfrac{pq}{(\sqrt{pq}-a)^2(\sqrt{pq}+a)}E\left(\dfrac{[4a\sqrt{pq}]^{1/2}}{\sqrt{pq}+a}\right)$ $\quad p>0,\ q>0,\ pq>a^2$	$\dfrac{1}{2\sqrt{xy}}[1+4a^2xy]I_0(2a\sqrt{xy})+2aI_1(2a\sqrt{xy})$
8.13	$\dfrac{1}{\sqrt{(pq+ab+c^2)^2+(aq-pb)^2}}\times\dfrac{p^2q+qa^2+pc^2}{[(pq+ab+c^2)^2+(aq-pb)^2-4abc^2]}\times E\left(\dfrac{2c\sqrt{ab}}{\sqrt{(pq+ab+c^2)^2+(aq-pb)^2}}\right)$ $\quad p>0,\ q>0$	$\dfrac{\pi}{2}yJ_0(ax)J_0(by)J_0(2c\sqrt{xy})$
8.14	$\dfrac{1}{\sqrt{(pq-ab-c^2)^2-(aq-pb)^2}}\times\dfrac{p^2q-qa^2-pc^2}{[(pq+ab+c^2)^2-(aq-pb)^2-4abc^2]}\times E\left(\dfrac{2c\sqrt{ab}}{\sqrt{(pq-ab-c^2)^2-(aq-pb)^2}}\right)$ $\quad p>a,\ q>b,\ (p-a)(q-b)>c^2$	$\dfrac{\pi}{2}yI_0(ax)I_0(by)I_0(2c\sqrt{xy})$

8. Inversion Formulas for *E(k)*—Continued

8.15	$\frac{1}{[(\sqrt{pq}-a)^2+b^2][(\sqrt{pq}+a)^2+b^2]^{1/2}} \times E\left(\left[\frac{4a\sqrt{pq}}{(\sqrt{pq}+a)^2+b^2}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>a^2$	$\frac{1}{b} I_0(2a\sqrt{xy}) \sin(2b\sqrt{xy})$
8.16	$\frac{p}{[(\sqrt{pq}-a)^2+b^2][(\sqrt{pq}+a)^2+b^2]^{1/2}} \times E\left(\left[\frac{4a\sqrt{pq}}{(\sqrt{pq}+a)^2+b^2}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>a^2$	$\sqrt{\frac{y}{x}}\left[I_0(2a\sqrt{xy}) \cos(2b\sqrt{xy}) + \frac{a}{b} I_1(2a\sqrt{xy}) \sin(2b\sqrt{xy})\right]$
8.17	$\frac{pq}{[(\sqrt{pq}-a)^2+b^2][(\sqrt{pq}+a)^2+b^2]^{1/2}} \times E\left(\left[\frac{4a\sqrt{pq}}{(\sqrt{pq}+a)^2+b^2}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>a^2$	$\frac{1}{2\sqrt{xy}}[I_0(2a\sqrt{xy})+4a\sqrt{xy}\, I_1(2a\sqrt{xy})] \times \cos(2b\sqrt{xy}) +2a\left(\frac{a}{b}-\frac{b}{a}\right)\sqrt{xy}\, I_0(2a\sqrt{xy}) \sin(2b\sqrt{xy})$
8.18	$\frac{1}{[(\sqrt{pq}-a)^2-b^2][(\sqrt{pq}+a)^2-b^2]^{1/2}} \times E\left(\left[\frac{4a\sqrt{pq}}{(\sqrt{pq}+a)^2-b^2}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>(a+b)^2$	$\frac{1}{b} I_0(2a\sqrt{xy}) \sinh(2b\sqrt{xy})$
8.19	$\frac{p}{[(\sqrt{pq}-a)^2-b^2][(\sqrt{pq}+a)^2-b^2]^{1/2}} \times E\left(\left[\frac{4a\sqrt{pq}}{(\sqrt{pq}+a)^2-b^2}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>(a+b)^2$	$\sqrt{\frac{y}{x}}\left[I_0(2a\sqrt{xy}) \cosh(2b\sqrt{xy}) + \frac{a}{b} I_1(2a\sqrt{xy}) \sinh(2b\sqrt{xy})\right]$
8.20	$\frac{pq}{[(\sqrt{pq}-a)^2-b^2][(\sqrt{pq}+a)^2-b^2]^{1/2}} \times E\left(\left[\frac{4a\sqrt{pq}}{(\sqrt{pq}+a)^2-b^2}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>(a+b)^2$	$\frac{1}{2\sqrt{xy}}[I_0(2a\sqrt{xy})+4a\sqrt{xy}\, I_1(2a\sqrt{xy})] \times \cosh(2b\sqrt{xy}) +2a\left(\frac{a}{b}+\frac{b}{a}\right)\sqrt{xy}\, I_0(2a\sqrt{xy}) \sinh(2b\sqrt{xy})$

9. Inversion Formulas for $B(k)$

	$\int_0^\infty \int_0^\infty e^{-px-qy} f(x, y)dxdy$	$f(x, y)$
9.1	$\frac{1}{pq} B\left(\frac{1}{pq}\right) \qquad p>0, q>0, pq>1$	$\frac{1}{4} \frac{J_0(2\sqrt{xy})}{\sqrt{x}} \overset{x}{*} \frac{I_0(2\sqrt{xy})}{\sqrt{x}} - \frac{1}{4} \frac{J_2(2\sqrt{xy})}{\sqrt{x}} \overset{x}{*} \frac{I_2(2\sqrt{xy})}{\sqrt{x}}$
9.2	$\frac{1}{pq} B\left(\frac{a}{\sqrt{pq}}\right) \qquad p>0, q>0, pq>a^2$	$\frac{\pi}{4} {}_2F_3\left(\frac{1}{2}, \frac{1}{2}; 2, 1, 1; a^2xy\right)$
9.3	$\frac{1}{pq-a^2} B\left(\frac{a}{\sqrt{pq}}\right) \qquad p>0, q>0, pq>a^2$	$\frac{\pi}{4} {}_2F_3\left(\frac{3}{2}, \frac{3}{2}; 2, 1, 1; a^2xy\right)$
9.4	$\frac{1}{\sqrt{pq}} B\left(\frac{a}{\sqrt{pq}}\right) \qquad p>0, q>0, pq>a^2$	$\frac{1}{4axy} I_1(2a\sqrt{xy})$
9.5	$\frac{\sqrt{pq}}{(pq-a^2)} B\left(\frac{a}{\sqrt{pq}}\right) \qquad p>0, q>0, pq>a^2$	$\left[a+\frac{1}{4axy}\right] I_1(2a\sqrt{xy})$
9.6	$\frac{\sqrt{p}}{(pq-a^2)\sqrt{q}} B\left(\frac{a}{\sqrt{pq}}\right) \qquad p>0, q>0, pq>a^2$	$\frac{\sqrt{y}}{2\sqrt{x}} [I_0(2a\sqrt{xy})+I_2(2a\sqrt{xy})]$
9.7	$\frac{1}{(pq-a^2)\sqrt{pq}} B\left(\frac{a}{\sqrt{pq}}\right) \qquad p>0, q>0, pq>a^2$	$\frac{1}{a} I_1(2a\sqrt{xy})$
9.8	$\frac{1}{\sqrt{p}} B\left(\sqrt{1-\frac{q}{p}}\right) \qquad p>0, q>0$	$\frac{\sqrt{x}}{2\sqrt{\pi y(x+y)^3}}$
9.9	$\frac{1}{q\sqrt{p}} B\left(\sqrt{1-\frac{q}{p}}\right) \qquad p>0, q>0$	$\frac{\sqrt{y}}{\sqrt{\pi x(x+y)}}$

9.10	$\frac{1}{\sqrt{pq+a^2}}B\left(\frac{a}{\sqrt{pq+a^2}}\right)$ $p>0,\ q>0$	$\frac{1}{4\sqrt{xy}}[J_0(2a\sqrt{xy})-J_2(2a\sqrt{xy})]$
9.11	$\frac{1}{q\sqrt{pq+a^2}}B\left(\frac{a}{\sqrt{pq+a^2}}\right)$ $p>0,\ q>0$	$\frac{1}{2ax}J_1(2a\sqrt{xy})$
9.12	$\frac{1}{\sqrt{pq(pq+a^2)}}B\left(\frac{a}{\sqrt{pq+a^2}}\right)$ $p>0,\ q>0$	$\frac{\pi}{4}\,{}_2F_3\left(\frac{1}{2},\frac{3}{2};2,1,1;-a^2xy\right)$
9.13	$\frac{1}{\sqrt{p^2q^2+1}}B\left(\frac{1}{\sqrt{p^2q^2+1}}\right)$ $p>0,\ q>0$	$\frac{1}{4}\frac{J_0(2\sqrt{ixy})}{\sqrt{x}}\overset{x}{*}\frac{I_0(2\sqrt{ixy})}{\sqrt{x}}$ $+\frac{1}{4}\frac{J_2(2\sqrt{ixy})}{\sqrt{x}}\overset{x}{*}\frac{I_2(2\sqrt{ixy})}{\sqrt{x}}$ VD 248 (7), DP 464 (53.6)
9.14	$\frac{(pq)^{-1/4}}{\sqrt{pq}\mp a}B\left(\left[\frac{1}{2}\left\{1\pm\frac{a}{\sqrt{pq}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>a^2$	$\frac{1}{\sqrt{\pi}}(xy)^{-1/4}e^{\pm 2a\sqrt{xy}}$
9.15	$\frac{p^{-1/4}}{\sqrt{p}+\sqrt{q}}B\left(\left[\frac{1}{2}\left\{1-\sqrt{\frac{q}{p}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0$	$\frac{1}{2\sqrt{2}\Gamma\left(\frac{3}{4}\right)}\left[\frac{x}{y(x+y)^5}\right]^{1/4}$
9.16	$\frac{p^{-1/4}}{\sqrt{q}(\sqrt{p}+\sqrt{q})}B\left(\left[\frac{1}{2}\left\{1-\sqrt{\frac{q}{p}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0$	$\frac{1}{2\sqrt{2}\Gamma\left(\frac{5}{4}\right)}\left[\frac{y}{x(x+y)^3}\right]^{1/4}$
9.17	$\frac{1}{\sqrt{pq}(\sqrt{pq}+\sqrt{pq-a^2})}$ $\times B\left(\left[\frac{1}{2}\left\{1-\sqrt{1-\frac{a^2}{pq}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>a^2$	$\frac{\pi}{8}\,{}_2F_3\left(\frac{3}{4},\frac{3}{4};2,1,1;a^2xy\right)$

9.18	$\dfrac{1}{\sqrt{pq-a^2}(\sqrt{pq}+\sqrt{pq-a^2})} \times B\left(\left[\dfrac{1}{2}\left\{1-\sqrt{1-\dfrac{a^2}{pq}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>a^2$	$\dfrac{\pi}{8}\,{}_2F_3\left(\dfrac{5}{4},\dfrac{5}{4};2,1,1;a^2xy\right)$
9.19	$\dfrac{(pq)^{-1/4}}{(\sqrt{pq}+\sqrt{pq-a^2})} \times B\left(\left[\dfrac{1}{2}\left\{1-\sqrt{1-\dfrac{a^2}{pq}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>a^2$	$\dfrac{\pi}{8\Gamma^2\left(\dfrac{3}{4}\right)a}(xy)^{-3/4}I_1(2a\sqrt{xy})$
9.20	$\dfrac{1}{\sqrt{pq}(\sqrt{pq}+\sqrt{pq-a^2})^2} \times B^2\left(\left[\dfrac{1}{2}\left\{1-\sqrt{1-\dfrac{a^2}{pq}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>a^2$	$\dfrac{\pi}{4a^2\sqrt{xy}}I_1^2(a\sqrt{xy})$
9.21	$\dfrac{\sqrt{p}}{\sqrt{q}(\sqrt{pq}+\sqrt{pq-a^2})^2} \times B^2\left(\left[\dfrac{1}{2}\left\{1-\sqrt{1-\dfrac{a^2}{pq}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>a^2$	$\dfrac{\pi}{4ax}I_1(a\sqrt{xy})\left[I_0(a\sqrt{xy})-\dfrac{3}{2a\sqrt{xy}}I_1(a\sqrt{xy})\right]$
9.22	$\dfrac{1}{[(pq-a^2+b^2)^2+4a^2pq]^{1/4}} \times \dfrac{p}{pq-a^2+b^2+\sqrt{(pq-a^2+b^2)^2+4a^2pq}} \times B\left(\left[\dfrac{1}{2}\left\{1-\dfrac{pq-a^2+b^2}{\sqrt{(pq-a^2+b^2)^2+4a^2pq}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0$	$\dfrac{1}{4ax}J_1(2a\sqrt{xy})\cos(2b\sqrt{xy})$

9. Inversion Formulas for $B(k)$—Continued

9.23	$\dfrac{1}{[(pq-a^2+b^2)^2+4a^2pq]^{1/4}}$ $\times\dfrac{pq}{pq-a^2+b^2+\sqrt{(pq-a^2+b^2)^2+4a^2pq}}$ $\times B\left(\left[\dfrac{1}{2}\left\{1-\dfrac{pq-a^2+b^2}{\sqrt{(pq-a^2+b^2)^2+4a^2pq}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0$	$\dfrac{1}{8a\sqrt{xy}}\ [a\{J_0(2a\sqrt{xy})-J_2(2a\sqrt{xy})\}$ $\times\cos(2b\sqrt{xy})$ $-2b\ J_1(2a\sqrt{xy})\sin(2b\sqrt{xy})]$
9.24	$\dfrac{1}{[(pq-a^2-b^2)^2+4a^2pq]^{1/4}}$ $\times\dfrac{p}{pq-a^2-b^2+\sqrt{(pq-a^2-b^2)^2+4a^2pq}}$ $\times B\left(\left[\dfrac{1}{2}\left\{1-\dfrac{pq-a^2-b^2}{\sqrt{(pq-a^2-b^2)^2+4a^2pq}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>b^2$	$\dfrac{1}{4ax}\ J_1(2a\sqrt{xy})\cosh(2b\sqrt{xy})$
9.25	$\dfrac{1}{[(pq-a^2-b^2)^2+4a^2pq]^{1/4}}$ $\times\dfrac{pq}{pq-a^2-b^2+\sqrt{(pq-a^2-b^2)^2+4a^2pq}}$ $\times B\left(\left[\dfrac{1}{2}\left\{1-\dfrac{pq-a^2-b^2}{\sqrt{(pq-a^2-b^2)^2+4a^2pq}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>b^2$	$\dfrac{1}{8a\sqrt{xy}}\ [a\{J_0(2a\sqrt{xy})-J_2(2a\sqrt{xy})\}$ $\times\cosh(2b\sqrt{xy})$ $+2bJ_1(2a\sqrt{xy})\sinh(2b\sqrt{xy})]$

10. Inversion Formulas for $C(k)$

	$\int_0^\infty\int_0^\infty e^{-px-qy}f(x,y)\,dxdy$	$f(x,y)$
10.1	$\dfrac{1}{p^3q^3}C\left(\dfrac{1}{pq}\right)$ $p>0,\ q>0,\ pq>1$	$\dfrac{1}{2}\dfrac{J_2(2\sqrt{xy})}{\sqrt{x}} \overset{x}{*} \dfrac{I_2(2\sqrt{xy})}{\sqrt{x}}$
10.2	$\dfrac{1}{pq}C\left(\dfrac{a}{\sqrt{pq}}\right)$ $p>0,\ q>0,\ pq>a^2$	$\dfrac{\pi}{16}\,{}_2F_3\left(\dfrac{3}{2},\dfrac{3}{2};3,\ 1,\ 1;\ a^2xy\right)$

10.3	$\frac{1}{\sqrt{pq}}C\left(\frac{a}{\sqrt{pq}}\right)$	$p>0,\ q>0,\ pq>a^2$	$\frac{1}{2\sqrt{xy}}\left[I_0(2a\sqrt{xy})-\frac{1}{2a\sqrt{xy}}I_1(2a\sqrt{xy})-\frac{3}{4a^2xy}I_2(2a\sqrt{xy})-\frac{3}{2a\sqrt{xy}}I_3(2a\sqrt{xy})\right]$
10.4	$\frac{1}{\sqrt{(pq)^3}}C\left(\frac{a}{\sqrt{pq}}\right)$	$p>0,\ q>0,\ pq>a^2$	$\frac{1}{2a^2\sqrt{xy}}I_2(2a\sqrt{xy})$
10.5	$\frac{1}{\sqrt{pq^3}}C\left(\frac{a}{\sqrt{pq}}\right)$	$p>0,\ q>0,\ pq>a^2$	$\frac{1}{4ax}\left[2I_1(2a\sqrt{xy})-\frac{3}{a\sqrt{xy}}I_2(2a\sqrt{xy})\right]$
10.6	$\frac{1}{\sqrt{p^3}}C\left(\sqrt{1-\frac{q}{p}}\right)$	$p>0,\ q>0$	$\frac{\sqrt{xy}}{\sqrt{\pi(x+y)^3}}$
10.7	$\frac{1}{\sqrt{p(pq+1)^3}}C\left(\sqrt{\frac{2}{pq+1}}\right)$	$p>0,\ q>0,\ pq>1$	$\frac{\sqrt{\pi}}{4\sqrt{y}}J_1(\sqrt{2ixy})J_1(\sqrt{-2ixy})$
10.8	$\frac{1}{(pq+a^2)^{3/2}}C\left(\frac{a}{\sqrt{pq+a^2}}\right)$	$p>0,\ q>0$	$\frac{1}{2a^2\sqrt{xy}}J_2(2a\sqrt{xy})$
10.9	$\frac{p}{(pq+a^2)^{3/2}}C\left(\frac{a}{\sqrt{pq+a^2}}\right)$	$p>0,\ q>0$	$\frac{1}{4ax}\left[2J_1(2a\sqrt{xy})-\frac{3}{a\sqrt{xy}}J_2(2a\sqrt{xy})\right]$
10.10	$\frac{pq}{(pq+a^2)^{3/2}}C\left(\frac{a}{\sqrt{pq+a^2}}\right)$	$p>0,\ q>0$	$\frac{1}{2\sqrt{xy}}\left[J_0(2a\sqrt{xy})-\frac{1}{2a\sqrt{xy}}J_1(2a\sqrt{xy})-\frac{3}{4a^2xy}J_2(2a\sqrt{xy})+\frac{3}{2a\sqrt{xy}}J_3(2a\sqrt{xy})\right]$
10.11	$\frac{\sqrt{pq}}{(pq+a^2)^{3/2}}C\left(\frac{a}{\sqrt{pq+a^2}}\right)$	$p>0,\ q>0$	$\frac{\pi}{16}\,{}_2F_3\left(\frac{3}{2},\frac{3}{2};3,\,1,\,1;\,-a^2xy\right)$
10.12	$\frac{1}{(p^2q^2+1)^{3/2}}C\left(\frac{1}{\sqrt{p^2q^2+1}}\right)$	$p>0,\ q>0$	$-\frac{1}{2}\frac{J_2(2\sqrt{ixy})}{\sqrt{x}}\overset{x}{*}\frac{I_2(2\sqrt{ixy})}{\sqrt{x}}$ VD 248 (9), DP 464 (53.7)

10. 13	$\dfrac{p^2}{(\sqrt{pq}+a)^3}C\left(\dfrac{[4a\sqrt{pq}]^{1/2}}{\sqrt{pq}+a}\right)$ $p>0,\ q>0,\ pq>a^2$	$\dfrac{1}{8ax}I_1(2a\sqrt{xy})$
10. 14	$\dfrac{p^2}{[(\sqrt{pq}+a)^2+b^2]^{3/2}}$ $\times C\left(\left[\dfrac{4a\sqrt{pq}}{(\sqrt{pq}+a)^2+b^2}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>a^2$	$\dfrac{1}{8ax}I_1(2a\sqrt{xy})\cos(2b\sqrt{xy})$
10. 15	$\dfrac{p^2}{[(\sqrt{pq}+a)^2-b^2]^{3/2}}$ $\times C\left(\left[\dfrac{4a\sqrt{pq}}{(\sqrt{pq}+a)^2-b^2}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>(a+b)^2$	$\dfrac{1}{8ax}I_1(2a\sqrt{xy})\cosh(2b\sqrt{xy})$
10. 16	$\dfrac{1}{[(pq+ab+c^2)^2+(aq-pb)^2]^{3/2}}$ $\times C\left(\dfrac{2c\sqrt{ab}}{\sqrt{(pq+ab+c^2)^2+(aq-pb)^2}}\right)$ $p>0,\ q>0$	$\dfrac{\pi}{8abc^2}J_1(ax)J_1(by)J_2(2c\sqrt{xy})$
10. 17	$\dfrac{1}{[(pq-ab-c^2)^2-(aq-pb)^2]^{3/2}}$ $\times C\left(\dfrac{2c\sqrt{ab}}{\sqrt{(pq-ab-c^2)^2-(aq-pb)^2}}\right)$ $p>a,\ q>b,\ (p-a)(q-b)>c^2$	$\dfrac{\pi}{8abc^2}I_1(ax)I_1(by)I_2(2c\sqrt{xy})$

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11. Inversion Formulas for $D(k)$

	$\int_0^\infty \int_0^\infty e^{-px-qy} f(x, y)\,dx dy$		$f(x, y)$
11.1	$\frac{1}{pq} D\left(\frac{1}{pq}\right)$	$p>0,\ q>0,\ pq>1$	$\frac{1}{4} \frac{J_0(2\sqrt{xy})}{\sqrt{x}} \overset{x}{*} \frac{I_0(2\sqrt{xy})}{\sqrt{x}} + \frac{1}{4} \frac{J_2(2\sqrt{xy})}{\sqrt{x}} \overset{x}{*} \frac{I_2(2\sqrt{xy})}{\sqrt{x}}$
11.2	$\frac{1}{pq} D\left(\frac{a}{\sqrt{pq}}\right)$	$p>0,\ q>0,\ pq>a^2$	$\frac{\pi}{4}\, {}_2F_3\left(\frac{1}{2}, \frac{3}{2}; 2, 1, 1; a^2xy\right)$
11.3	$\frac{1}{\sqrt{pq}} D\left(\frac{a}{\sqrt{pq}}\right)$	$p>0,\ q>0,\ pq>a^2$	$\frac{1}{4\sqrt{xy}} [I_0(2a\sqrt{xy})+I_2(2a\sqrt{xy})]$
11.4	$\frac{1}{\sqrt{pq^3}} D\left(\frac{a}{\sqrt{pq}}\right)$	$p>0,\ q>0,\ pq>a^2$	$\frac{1}{2ax} I_1(2a\sqrt{xy})$
11.5	$\frac{1}{\sqrt{p}} D\left(\sqrt{1-\frac{q}{p}}\right)$	$p>0,\ q>0$	$\frac{\sqrt{y}}{2\sqrt{\pi x(x+y)^3}}$
11.6	$\frac{1}{\sqrt{p^3}} D\left(\sqrt{1-\frac{q}{p}}\right)$	$p>0,\ q>0$	$\frac{\sqrt{x}}{\sqrt{\pi y(x+y)}}$
11.7	$\frac{1}{\sqrt{pq+a^2}} D\left(\frac{a}{\sqrt{pq+a^2}}\right)$	$p>0,\ q>0$	$\frac{1}{4axy} J_1(2a\sqrt{xy})$
11.8	$\frac{1}{(pq+a^2)^{3/2}} D\left(\frac{a}{\sqrt{pq+a^2}}\right)$	$p>0,\ q>0$	$\frac{1}{a} J_1(2a\sqrt{xy})$
11.9	$\frac{p}{(pq+a^2)^{3/2}} D\left(\frac{a}{\sqrt{pq+a^2}}\right)$	$p>0,\ q>0$	$\frac{\sqrt{y}}{2\sqrt{x}} [J_0(2a\sqrt{xy})-J_2(2a\sqrt{xy})]$
11.10	$\frac{pq}{(pq+a^2)^{3/2}} D\left(\frac{a}{\sqrt{pq+a^2}}\right)$	$p>0,\ q>0$	$\left[\frac{1}{4axy}-a\right] J_1(2a\sqrt{xy})$

11.11	$\frac{\sqrt{pq}}{(pq+a^2)^{3/2}}D\left(\frac{a}{\sqrt{pq+a^2}}\right)$	$p>0,\ q>0$	$\frac{\pi}{4}\,{}_2F_3\left(\frac{3}{2},\frac{3}{2};2,1,1;-a^2xy\right)$
11.12	$\frac{1}{\sqrt{pq(pq+a^2)}}D\left(\frac{a}{\sqrt{pq+a^2}}\right)$	$p>0,\ q>0$	$\frac{\pi}{4}\,{}_2F_3\left(\frac{1}{2},\frac{1}{2};2,1,1;-a^2xy\right)$
11.13	$\frac{1}{\sqrt{p^2q^2+1}}D\left(\frac{1}{\sqrt{p^2q^2+1}}\right)$	$p>0,\ q>0$	$\frac{1}{4}\frac{J_0(2\sqrt{ixy})}{\sqrt{x}}\overset{x}{*}\frac{I_0(2\sqrt{ixy})}{\sqrt{x}}-\frac{1}{4}\frac{J_2(2\sqrt{ixy})}{\sqrt{x}}\overset{x}{*}\frac{I_2(2\sqrt{ixy})}{\sqrt{x}}$ VD 248 (8), DP 464 (53.8)
11.14	$\frac{1}{(\sqrt{pq}+a)^3}D\left(\frac{\sqrt{pq}-a}{\sqrt{pq}+a}\right)$	$p>0,\ q>0$	$\frac{2\sqrt{xy}}{\pi}K_0(2a\sqrt{xy})$
11.15	$\frac{p}{(\sqrt{pq}+a)^3}D\left(\frac{\sqrt{pq}-a}{\sqrt{pq}+a}\right)$	$p>0,\ q>0$	$\frac{\sqrt{y}}{\pi\sqrt{x}}[K_0(2a\sqrt{xy})-2a\sqrt{xy}K_1(2a\sqrt{xy})]$
11.16	$\frac{pq}{(\sqrt{pq}+a)^3}D\left(\frac{\sqrt{pq}-a}{\sqrt{pq}+a}\right)$	$p>0,\ q>0$	$\frac{1}{2\pi\sqrt{xy}}[(1+4a^2xy)K_0(2a\sqrt{xy})-4a\sqrt{xy}K_1(2a\sqrt{xy})]$
11.17	$\frac{1}{(\sqrt{pq+a^2}+\sqrt{pq})^3}D^2\left(\frac{a}{\sqrt{pq+a^2}+\sqrt{pq}}\right)$	$p>0,\ q>0$	$\frac{\pi}{8a^2\sqrt{xy}}J_1^2(a\sqrt{xy})$
11.18	$\frac{p}{(\sqrt{pq+a^2}+\sqrt{pq})^3}D^2\left(\frac{a}{\sqrt{pq+a^2}+\sqrt{pq}}\right)$	$p>0,\ q>0$	$\frac{\pi}{8ax}J_1(a\sqrt{xy})\left[J_0(a\sqrt{xy})-\frac{3}{2a\sqrt{xy}}\times J_1(a\sqrt{xy})\right]$
11.19	$\frac{1}{(\sqrt{pq+a^2}+\sqrt{pq})^{3/2}}D\left(\frac{a}{\sqrt{pq+a^2}+\sqrt{pq}}\right)$	$p>0,\ q>0$	$\frac{\pi}{8\sqrt{2}\,\Gamma^2\left(\frac{3}{4}\right)a}(xy)^{-3/4}J_1(2a\sqrt{xy})$

11. 20	$\dfrac{(pq)^{-1/4}}{(\sqrt{pq}+\sqrt{pq+a^2})^{3/2}} D\left(\dfrac{a}{\sqrt{pq}+\sqrt{pq+a^2}}\right)$ $p>0,\ q>0$	$\dfrac{\pi}{8\sqrt{2}}\,{}_2F_3\left(\dfrac{3}{4}, \dfrac{3}{4}; 2, 1, 1; -a^2xy\right)$
11. 21	$\dfrac{(pq)^{1/4}}{\sqrt{pq+a^2}\,(\sqrt{pq}+\sqrt{pq+a^2})^{3/2}}$ $\times D\left(\dfrac{a}{\sqrt{pq}+\sqrt{pq+a^2}}\right)$ $p>0,\ q>0$	$\dfrac{\pi}{8\sqrt{2}}\,{}_2F_3\left(\dfrac{5}{4}, \dfrac{5}{4}; 2, 1, 1; -a^2xy\right)$
11. 22	$\dfrac{1}{[(\sqrt{pq}+a)^2+b^2]^{3/2}}$ $\times D\left(\left[\dfrac{(\sqrt{pq}-a)^2+b^2}{(\sqrt{pq}+a)^2+b^2}\right]^{1/2}\right)$ $p>0,\ q>0$	$\dfrac{1}{\pi b} K_0(2a\sqrt{xy}) \sin(2b\sqrt{xy})$
11. 23	$\dfrac{p}{[(\sqrt{pq}+a)^2+b^2]^{3/2}}$ $\times D\left(\left[\dfrac{(\sqrt{pq}-a)^2+b^2}{(\sqrt{pq}+a)^2+b^2}\right]^{1/2}\right)$ $p>0,\ q>0$	$\dfrac{\sqrt{y}}{\pi\sqrt{x}}\Big[K_0(2a\sqrt{xy}) \cos(2b\sqrt{xy})$ $-\dfrac{a}{b} K_1(2a\sqrt{xy}) \sin(2b\sqrt{xy})\Big]$
11. 24	$\dfrac{pq}{[(\sqrt{pq}+a)^2+b^2]^{3/2}}$ $\times D\left(\left[\dfrac{(\sqrt{pq}-a)^2+b^2}{(\sqrt{pq}+a)^2+b^2}\right]^{1/2}\right)$ $p>0,\ q>0$	$\dfrac{1}{2\pi\sqrt{xy}}\Big[\{K_0(2a\sqrt{xy})-4a\sqrt{xy}\,K_1(2a\sqrt{xy})\}$ $\times\cos(2b\sqrt{xy})$ $+2a\left(\dfrac{a}{b}-\dfrac{b}{a}\right) K_0(2a\sqrt{xy}) \sin(2b\sqrt{xy})\Big]$
11. 25	$\dfrac{1}{[(\sqrt{pq}+a)^2-b^2]^{3/2}}$ $\times D\left(\left[\dfrac{(\sqrt{pq}-a)^2-b^2}{(\sqrt{pq}+a)^2-b^2}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>b^2$	$\dfrac{1}{\pi b} K_0(2a\sqrt{xy}) \sinh(2b\sqrt{xy})$

11. Inversion Formulas for *D(k)*—Continued

11.26	$\frac{p}{[(\sqrt{pq}+a)^2-b^2]^{3/2}} \times D\left(\left[\frac{(\sqrt{pq}-a)^2-b^2}{(\sqrt{pq}+a)^2-b^2}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>b^2$	$\frac{\sqrt{y}}{\pi\sqrt{x}}\left[K_0(2a\sqrt{xy})\cosh(2b\sqrt{xy}) - \frac{a}{b}K_1(2a\sqrt{xy})\sinh(2b\sqrt{xy})\right]$
11.27	$\frac{pq}{[(\sqrt{pq}+a)^2-b^2]^{3/2}} \times D\left(\left[\frac{(\sqrt{pq}-a)^2-b^2}{(\sqrt{pq}+a)^2-b^2}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>b^2$	$\frac{1}{2\pi\sqrt{xy}}\left[\{K_0(2a\sqrt{xy})-4a\sqrt{xy}\,K_1(2a\sqrt{xy})\} \times\cosh(2b\sqrt{xy}) +2a\left(\frac{a}{b}+\frac{b}{a}\right)K_0(2a\sqrt{xy})\sinh(2b\sqrt{xy})\right]$

12. Some Inversion Formulas for Mixtures of Complete Elliptic Integrals

	$\int_0^\infty\int_0^\infty e^{-px-qy}f(x,y)\,dx\,dy$	$f(x,y)$
12.1	$(pq+a^2)^{-3/2} \times\left\{2E\left(\frac{a}{\sqrt{pq+a^2}}\right)-K\left(\frac{a}{\sqrt{pq+a^2}}\right)\right\}$ $p>0,\ q>0$	$2\sqrt{xy}\,J_0(2a\sqrt{xy})$
12.2	$(pq+a^2)^{-3/4} \times\left\{2E\left(\left[\frac{1}{2}\left\{1\pm\frac{a}{\sqrt{pq+a^2}}\right\}\right]^{1/2}\right) -K\left(\left[\frac{1}{2}\left\{1\pm\frac{a}{\sqrt{pq+a^2}}\right\}\right]^{1/2}\right)\right\}$ $p>0,\ q>0$	$\frac{1}{\sqrt{\pi}}(xy)^{-1/4}[\cos(2a\sqrt{xy})\mp\sin(2a\sqrt{xy})]$

12. 3	$\{(pq-a^2+b^2)^2+4a^2pq\}^{-3/4}$ $\times\left\{2E\left(\left[\frac{1}{2}\left\{1-\frac{pq-a^2+b^2}{\sqrt{(pq-a^2+b^2)^2+4a^2pq}}\right\}\right]^{1/2}\right)\right.$ $\left.-K\left(\left[\frac{1}{2}\left\{1-\frac{pq-a^2+b^2}{\sqrt{(pq-a^2+b^2)^2+4a^2pq}}\right\}\right]^{1/2}\right)\right\}$ $p>0,\ q>0$	$\frac{1}{b}J_0(2a\sqrt{xy})\sin(2b\sqrt{xy})$
12. 4	$\frac{\sqrt{pq-a^2}}{\sqrt{p^3q^3}(\sqrt{pq}+\sqrt{pq-a^2})}$ $\times K\left(\left[\frac{1}{2}\left\{1-\sqrt{1-\frac{a^2}{pq}}\right\}\right]^{1/2}\right)$ $\times B\left(\left[\frac{1}{2}\left\{1-\sqrt{1-\frac{a^2}{pq}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>a^2$	$\frac{\pi}{2a}I_0(a\sqrt{xy})I_1(a\sqrt{xy})$
12. 5	$\frac{\sqrt{pq-a^2}}{\sqrt{pq^3}(\sqrt{pq}+\sqrt{pq-a^2})}$ $\times K\left(\left[\frac{1}{2}\left\{1-\sqrt{1-\frac{a^2}{pq}}\right\}\right]^{1/2}\right)$ $\times B\left(\left[\frac{1}{2}\left\{1-\sqrt{1-\frac{a^2}{pq}}\right\}\right]^{1/2}\right)$ $p>0,\ q>0,\ pq>a^2$	$\frac{\pi}{4}\sqrt{\frac{y}{x}}\left[I_0^2(a\sqrt{xy})+I_1^2(a\sqrt{xy})\right.$ $\left.-\frac{1}{a\sqrt{xy}}I_0(a\sqrt{xy})\,I_1(a\sqrt{xy})\right]$
12. 6	$\frac{\sqrt{pq+a^2}}{q(\sqrt{pq+a^2}+\sqrt{pq})^2}$ $\times K\left(\frac{a}{\sqrt{pq+a^2}+\sqrt{pq}}\right)D\left(\frac{a}{\sqrt{pq+a^2}+\sqrt{pq}}\right)$ $p>0,\ q>0$	$\frac{\pi}{8}\sqrt{\frac{y}{x}}\left[J_0^2(a\sqrt{xy})-J_1^2(a\sqrt{xy})\right.$ $\left.-\frac{1}{a\sqrt{xy}}J_0(a\sqrt{xy})\,J_1(a\sqrt{xy})\right]$
12. 7	$\frac{\sqrt{pq+a^2}}{pq(\sqrt{pq+a^2}+\sqrt{pq})^2}$ $\times K\left(\frac{a}{\sqrt{pq+a^2}+\sqrt{pq}}\right)D\left(\frac{a}{\sqrt{pq+a^2}+\sqrt{pq}}\right)$ $p>0,\ q>0$	$\frac{\pi}{4a}J_0(a\sqrt{xy})\,J_1(a\sqrt{xy})$

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