! For an efficient use of these tables, first read `HowTo.pdf`.

T3.26B. Integrands involving exponentials and arbitrary powers of $(a + b\,x)$ on the interval (y, ∞).

1. $$\int_y^\infty x^{\nu-1} e^{-\mu x}\,dx = \mu^{-\nu}\Gamma(\nu,\,\mu y), \quad y > 0,\ \Re\{\mu\} > 0.$$

2. $$\int_y^\infty \frac{e^{-x}}{x^\nu}\,dx = y^{-\nu/2} e^{-y/2} W_{-\nu/2,\,(1-\nu)/2}(y), \quad y > 0.$$

3. $$\int_y^\infty (x-y)^\nu e^{-\mu x}\,dx = \mu^{-\nu-1} e^{-y\mu}\Gamma(\nu+1), \quad y > 0,\ \Re\{\nu\} > -1,\ \Re\{\mu\} > 0.$$

4. $$\int_y^\infty x^{\mu-1}(x-y)^{\mu-1} e^{-\beta x}\,dx = \frac{1}{\sqrt{\pi}}\left(\frac{y}{\beta}\right)^{\mu-1/2}\Gamma(\mu)\,\exp\left(-\frac{\beta y}{2}\right) K_{\mu-1/2}\left(\frac{\beta y}{2}\right),$$
$$\Re\{\mu\} > 0,\ \Re\{\beta y\} > 0.$$

5. $$\int_y^\infty x^{\nu-1}(x-y)^{\mu-1} e^{-\beta x}\,dx = \beta^{-(\mu+\nu)/2}\, y^{(\mu+\nu-2)/2}\Gamma(\mu)\,\exp\left(-\frac{\beta y}{2}\right) W_{(\nu-\mu)/2,\,(1-\mu-\nu)/2}(\beta\, y),$$
$$\Re\{\mu\} > 0,\ \Re\{\beta y\} > 0.$$

6. $$\int_y^\infty \frac{(x-y)^\nu e^{-\mu x}}{x}\,dx = y^\nu\Gamma(\nu+1)\Gamma(-\nu,\,y\mu), \quad y > 0,\ \Re\{\nu\} > -1,\ \Re\{\mu\} > 0.$$

7. $$\int_y^\infty (x+\beta)^{2\nu-1}(x-y)^{2\rho-1} e^{-\mu x}\,dx$$
$$= \frac{(y+\beta)^{\nu+\rho-1}}{\mu^{\nu+\rho}}\,\exp\left[\frac{(\beta-y)\mu}{2}\right]\Gamma(2\rho) W_{\nu-\rho,\,\nu+\rho-1/2}(y\mu+\beta\mu),$$
$$y > 0,\ |\arg(\beta+y)| < \pi,\ \Re\{\mu\} > 0,\ \Re\{\rho\} > 0.$$

8. $$\int_y^\infty (x+\beta)^\nu (x-y)^{-\nu} e^{-\mu x}\,dx = \frac{1}{\mu}\nu\pi\csc(\nu\pi)e^{-(\beta+y)\mu/2}\,k_{2\nu}\left[\frac{(\beta+y)\mu}{2}\right],$$
$$\nu\neq 0,\ y>0,\ |\arg(y+\beta)|<\pi,\ \Re\{\mu\}>0,\ \Re\{\nu\}<1.$$

9. $$\int_y^\infty (x-y)^{\nu-1}(x+y)^{-\nu+1/2}e^{-\mu x}\,dx = \frac{1}{\sqrt{\mu}}2^{\nu-1/2}\Gamma(\nu)\,D_{1-2\nu}(2\sqrt{y\mu}),$$
$$y>0,\ \Re\{\mu\}>0,\ \Re\{\nu\}>0.$$

10. $$\int_y^\infty (x-y)^{\nu-1}(x+y)^{-\nu-\frac{1}{2}}e^{-\mu x}\,dx = \frac{1}{\sqrt{y}}2^{\nu-1/2}\Gamma(\nu)D_{-2\nu}(2\sqrt{y\mu}),$$
$$y>0,\ \Re\{\mu\}\geq 0,\ \Re\{\nu\}>0.$$

11. $$\int_y^\infty (x^2-y^2)^{\nu-1}e^{-\mu x}\,dx = \frac{1}{\sqrt{\pi}}\left(\frac{2y}{\mu}\right)^{\nu-1/2}\Gamma(\nu)\,K_{\nu-1/2}(y\mu),\quad y>0,\ \Re\{\mu\}>0,\ \Re\{\nu\}>0.$$

12. $$\int_y^\infty x(x^2-y^2)^{\nu-1}e^{-\mu x}\,dx = 2^{\nu-1/2}(\sqrt{\pi})^{-1}\mu^{1/2-\nu}y^{\nu+1/2}\Gamma(\nu)K_{\nu+1/2}(y\mu),\quad \Re\{(y\mu)>0.$$