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

T2.37B. Integrands involving algebraic functions of exponentials and powers of $(a+b\,x)$ on the interval $(0, y)$.

1. $$\int_0^y \exp\left(-\frac{\beta}{x}\right)\frac{dx}{x^2} = \frac{1}{\beta}\exp\left(-\frac{\beta}{y}\right).$$

2. $$\int_0^y x^{\nu-1}(y-x)^{\mu-1}\,e^{-\beta/x}\,dx = \beta^{(\nu-1)/r2}y^{(2\mu+\nu-1)/2}\exp\left(-\frac{\beta}{2y}\right)\Gamma(\mu)W_{(1-2\mu-\nu)/2,\,\nu/2}\left(\frac{\beta}{y}\right),$$
$$\Re\{\mu\}>0,\ \Re\{\beta\}>0,\ y>0.$$

3. $$\int_0^y x^{-\mu-1}(y-x)^{\mu-1}\,e^{-\beta/x}\,dx = \beta^{-\mu}y^{\mu-1}\Gamma(\mu)\exp\left(-\frac{\beta}{y}\right),\quad \Re\{\mu\}>0,\ y>0.$$

4. $$\int_0^y x^{-2\mu}(y-x)^{\mu-1}\,e^{-\beta/x}\,dx = \frac{1}{\sqrt{\pi y}}\,\beta^{1/2-\mu}e^{-\beta/(2y)}\Gamma(\mu)\,K_{\mu-1/2}\left(\frac{\beta}{2y}\right),$$
$$y>0,\ \Re\{\beta\}>0,\ \Re\{\mu\}>0.$$

5. $$\int_0^y x^{-2\mu}(y^2-x^2)^{\mu-1}\,e^{-\beta/x}\,dx = \frac{1}{\sqrt{\pi}}\left(\frac{2}{\beta}\right)^{\mu-1/2}y^{\mu-3/2}\,\Gamma(\mu)\,K_{\mu-1/2}\left(\frac{\beta}{y}\right),$$
$$\Re\{\beta\}>0,\ y>0,\ \Re\{\mu\}>0.$$

6. $$\int_0^y x^{\nu-1}(y-x)^{\mu-1}\exp(\beta x^n)\,dx$$
$$= \mathrm{B}(\mu,\,\nu)\,y^{\mu+\nu-1}{}_nF_n\left(\frac{\nu}{n},\ \frac{\nu+1}{n},\dots,\frac{\nu+n-1}{n};\ \frac{\mu+\nu}{n},\ \frac{\mu+\nu+1}{n},\dots,\frac{\mu+\nu+n-1}{n};\ \beta y^n\right),$$
$$\Re\{\mu\}>0,\ \Re\{\nu\}>0,\ n=2,\,3,\dots.$$
