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

T3.26C. Integrands involving exponentials and arbitrary powers of $(a + b\,x)$ on the interval $(1, \infty)$.

1. $$\int_1^\infty (x^2-1)^{\nu-1} e^{i\mu x}\,dx = \begin{cases} i\,\dfrac{\sqrt{\pi}}{2}\left(\dfrac{2}{\mu}\right)^{\nu-1/2}\Gamma(\nu)\,H^{(1)}_{1/2-\nu}(\mu), & \Im\{\mu\}>0,\ \Re\{\nu\}>0, \\ -i\,\dfrac{\sqrt{\pi}}{2}\left(-\dfrac{2}{\mu}\right)^{\nu-1/2}\Gamma(\nu)\,H^{(2)}_{1/2-\nu}(-\mu), & \Im\{\mu\}<0,\ \Re\{\nu\}>0. \end{cases}$$

2. $$\int_1^\infty (x^2-1)^{\nu-1} e^{-\mu x}\,dx = \frac{1}{\sqrt{\pi}}\left(\frac{2}{\mu}\right)^{\nu-1/2}\Gamma(\nu)\,K_{\nu-1/2}(\mu), \quad |\arg\mu|<\frac{\pi}{2},\ \Re\{\nu\}>0.$$

3. $$\int_1^\infty \frac{(\sqrt{x^2-1}+x)^{\nu}+(\sqrt{x^2-1}+x)^{-\nu}}{\sqrt{x^2-1}}\,e^{-\mu x}\,dx = 2K_\nu(\mu), \quad \Re\{\mu\}>0.$$

4. $$\int_1^\infty \frac{(x+\sqrt{x^2-1})^{2\nu}+(x-\sqrt{x^2-1})^{2\nu}}{\sqrt{x(x^2-1)}}\,e^{-\mu x}\,dx = \sqrt{\frac{2\mu}{\pi}}K_{\nu+1/4}\left(\frac{\mu}{2}\right)K_{\nu-1/4}\left(\frac{\mu}{2}\right),$$
$$\Re\{\mu\}>0.$$