

FORMULA 4.267.30

$$\begin{aligned} \int_0^\infty \frac{(1-x^p)(1-x^q)x^{s-1} dx}{(1-x^{p+2q+2s}) \ln x} &= 2 \int_0^1 \frac{(1-x^p)(1-x^q)x^{s-1} dx}{(1-x^{p+2q+2s}) \ln x} \\ &= 2 \ln \left[\sin \left(\frac{\pi s}{p+q+2s} \right) \operatorname{cosec} \left(\frac{(p+s)\pi}{p+q+2s} \right) \right] \end{aligned}$$