

FORMULA 3.312.2

$$\int_0^{\infty} \frac{(1 - e^{-\alpha x})(1 - e^{-\beta x})e^{-px}}{1 - e^{-x}} dx = \psi(p + \alpha) + \psi(p + \beta) - \psi(p + \alpha + \beta) - \psi(p)$$