

FORMULA 3.524.5

$$\int_0^{\infty} x^{s-1} \frac{\cosh bx}{\sinh cx} dx = \frac{\Gamma(s)}{(2c)^s} \left[\zeta \left(s, \frac{1}{2} \left(1 - \frac{b}{c} \right) \right) + \zeta \left(s, \frac{1}{2} \left(1 + \frac{b}{c} \right) \right) \right]$$