

**FORMULA 4.272.13**

$$\int_0^1 \frac{x^q - x^{-q}}{1 - x^2} \left( \ln \frac{1}{x} \right)^p dx = \Gamma(p+1) \sum_{k=1}^{\infty} \left\{ \frac{1}{(2k+q-1)^{p+1}} - \frac{1}{(2k-q-1)^{p+1}} \right\} \quad p > -1, q^2 < 1$$