

**FORMULA 4.231.7**

$$\int_0^{\infty} \frac{\ln x \, dx}{(a^2 + b^2 x^2)^n} = \frac{\Gamma(n - \frac{1}{2}) \sqrt{\pi}}{4(n-1)! a^{2n-1} b} \left[ 2 \ln \left( \frac{a}{2b} \right) - \gamma - \psi \left( n - \frac{1}{2} \right) \right]$$