

FORMULA 4.242.2

$$\int_0^b \frac{\ln x \, dx}{\sqrt{(a^2 + x^2)(b^2 - x^2)}} = \frac{1}{2\sqrt{a^2 + b^2}} \left[ \mathbf{K} \left( \frac{b}{\sqrt{a^2 + b^2}} \right) \ln ab - \frac{\pi}{2} \mathbf{K} \left( \frac{a}{\sqrt{a^2 + b^2}} \right) \right] \quad a > 0, b > 0$$