

FORMULA 4.242.4

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