

**PROOF OF FORMULA 4.241.8**

$$\int_1^{\infty} \frac{\ln x \, dx}{x^2 \sqrt{x^2 - 1}} = 1 - \ln 2$$

Let  $t = e^x$  to obtain

$$\int_1^{\infty} \frac{\ln x \, dx}{x^2 \sqrt{x^2 - 1}} = \int_0^{\infty} \frac{te^{-t} \, dt}{\sqrt{e^{2t} - 1}}.$$

This last integral is evaluated in 3.452.4.