

**PROOF OF FORMULA 4.231.14**

$$\int_0^1 \frac{x \ln x}{1+x^2} dx = -\frac{\pi^2}{48}$$

Let  $t = x^2$  to obtain

$$\int_0^1 \frac{x \ln x}{1+x^2} dx = \frac{1}{4} \int_0^1 \frac{\ln t dt}{1+t}.$$

The result follows from the value

$$\int_0^1 \frac{\ln t dt}{1+t} = -\frac{\pi^2}{12},$$

given in formula **4.231.1**.