PROOF OF FORMULA 4.234.2

$$\int_0^1 \frac{x \, \ln x \, dx}{(1+x^2)^2} = -\frac{\ln 2}{4}$$

The change of variables $t = x^2$ gives

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

This last integral appears in 4.231.6 with value $-\ln 2$.