

PROOF OF FORMULA 4.281.1

$$\int_0^1 \left(\frac{1}{\ln x} + \frac{1}{1-x} \right) dx = \gamma$$

Entry 4.281.4 states that

$$\psi(a) = \int_0^1 \left(\frac{1}{\ln x} + \frac{x^{a-1}}{1-x} \right) dx.$$

Put $a = 1$ and use $\psi(1) = -\gamma$.