PROOF OF FORMULA 4.236.2

$$\int_0^1 \left[\frac{1}{1-x} + \frac{x \ln x}{(1-x)^2}\right] dx = \frac{\pi^2}{6} - 1$$

This is the special case $p = 1$ of entry **4.236.1** using the value $\psi'(1) = \frac{\pi^2}{6}$.