PROOF OF FORMULA 4.261.5

$$\int_0^\infty \frac{\ln^2 x \, dx}{(1-x)^2} = \frac{2\pi^2}{3}$$

The change of variable $x \mapsto 1/x$ on the interval $[1,\infty)$ shows that
$$\int_0^\infty \frac{\ln^2 x \, dx}{(1-x)^2} = 2 \int_0^1 \frac{\ln^2 x \, dx}{(1-x)^2}.$$
The expansion
$$\frac{1}{(1-x)^2} = \sum_{k=1}^\infty k x^{k-1}$$
and the evaluation
$$\int_0^1 x^{k-1} \ln^2 x \, dx = \frac{2}{k^3}$$
given in entry **4.261.18** produce the result.