FORMULA 4.257.4

$$\int_0^\infty \ln x \, \ln \frac{x}{a} \, \frac{dx}{(x-1)(x-a)} = \frac{\left[4\pi^2 + \ln^2 a\right] \ln a}{6(a-1)} \quad a > 0, \, a \neq 1$$

for $a = 1$ see 4.261.5