

FORMULA 4.327.2

$$\int_0^1 \frac{\ln(a^2 + 4 \ln^2 x)}{1 + x^2} dx = \pi \ln \frac{2\Gamma\left(\frac{a+3\pi}{4\pi}\right)}{\Gamma\left(\frac{a+\pi}{4\pi}\right)} + \frac{\pi}{2} \ln \pi$$