NEW FORMULA 4.295.1

The original formula is

$$\int_0^\infty \frac{\ln(\mu x^2+\beta)}{\gamma+x^2}\,dx = \frac{\pi}{\sqrt{\gamma}}\ln(\sqrt{\mu\gamma}+\sqrt{\beta})$$

Let $x=\sqrt{\gamma}\,t$ and replace $\mu\gamma$ by a and β by b to obtain (after writing x for the new variable of integration)

$$\int_0^\infty \frac{\ln(ax^2+b)}{1+x^2}\,dx = \pi\,\ln(\sqrt{a}+\sqrt{b})$$