

NEW FORMULA 3.251.7

The original formula is

$$\int_0^1 \frac{x^\mu dx}{(1+x^2)^2} = -\frac{1}{4} + \frac{\mu-1}{4} \beta\left(\frac{\mu-1}{2}\right)$$

it looks better if one replaces μ by $2a+1$ to obtain the new form

$$\int_0^1 \frac{x^{2a+1} dx}{(1+x^2)^2} = \frac{2a\beta(a)-1}{4}$$