

NEW FORMULA 3.911.1

The original formula is

$$\int_0^{\infty} \frac{\sin ax}{e^{\beta x} + 1} dx = \frac{1}{2a} - \frac{\pi}{2\beta \sinh \frac{\pi a}{\beta}}$$

the change of variables $t = \beta x$ and letting a/β be a (and going back to x as the integration variable) gives the new form

$$\int_0^{\infty} \frac{\sin ax}{e^x + 1} dx = \frac{1}{2a} - \frac{\pi}{2 \sinh \pi a}$$