

NEW FORMULA 4.132.2

The original formula is

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

the change $t = \gamma x$ and replacing a/γ by a and β/γ by b gives the new form

$$\int_0^{\infty} \frac{\sin ax \cosh bx}{e^x - 1} dx = -\frac{a}{2(a^2 + b^2)} + \frac{\pi}{2} \frac{\sinh 2\pi a}{\cosh 2\pi a - \cos 2\pi b}$$