NEW FORMULA 4.132.5

The original formula is

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

let $t = \gamma x$ and replace a/γ by a and β/γ by b to produce

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