PROOF OF FORMULA 3.522.8

$$\int_0^\infty \frac{dx}{(1+x^2)\cosh\frac{\pi x}{2}} = \ln 2$$

This is the special case $a = \pi/2$ and $b = 1$ of entry **3.522.3**. Replacing the specific parameters gives

$$\int_0^\infty \frac{dx}{(1+x^2)\cosh \pi x} = \sum_{k=1}^\infty \frac{(-1)^{k-1}}{k} = \ln 2.$$

This is the result.