

example_2

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September 16, 2022

A Practical Example

1. Prove that $\frac{\sin A}{1+\cos A} + \frac{\cos A}{\sin A} = \csc A$:

Solution

Starting from left:

$$\frac{\sin A}{1+\cos A} + \frac{\cos A}{\sin A} = \frac{\sin A \cdot \sin A + \cos A(1+\cos A)}{(1+\cos A)\sin A} \quad (1)$$

$$\frac{\sin^2 A + \cos A + \cos^2 A}{(1+\cos A)\sin A} \quad (2)$$

Then cancelling both $1+\cos A$: (3)

$$\frac{1+\cos A}{(1+\cos A)\sin A} \quad (4)$$

$$\frac{1}{\sin A} = \csc A \quad (5)$$

This example is generated with: `simtex -b -i='examples/2/example.2.md' -T='A practical example' -a='iaacornus'`