Trigonometric Identities

***Review*:** Identities are relationships between trigonometric functions that are known and understood to be true. We use these basic identities to prove other, more complex, identities.

Reciprocal Identities

Quotient Identities

Pythagorean Identities

Prove the following Identities:

Example 1

$$\frac{1+\sec x}{\tan x + \sin x} = \csc x$$

Example 2

$$1 - \frac{\sin^2 x}{1 + \cos x} = \cos x$$

Example 3

$$\frac{\tan x + \tan y}{\cot x + \cot y} = \tan x \tan y$$

Identity Crisis Worksheet

Prove each of the following Identities:

3.

$$\frac{\cos x - \sin y}{\cos y - \sin x} = \frac{\cos y + \sin x}{\cos x + \sin y}$$

4.

$$\frac{\cos x \cot x}{\cot x - \cos x} = \frac{\cot x + \cos x}{\cos x \cot x}$$

5.

$$(\sec x - \cos x)(\csc x - \sin x) = \frac{\tan x}{1 + \tan^2 x}$$