

2.2 ~ Verifying Trigonometric Identities

Rules:

- * Work on one side at a time.
- * Factor, add, multiply as needed.
- * If all else fails, change everything to sines and cosines.
- * Never multiply or divide both sides by something.
- * Always try something.

Example 1: Verify this identity

$$\cos x + \sin x \tan x = \sec x$$

Example 2: Verify

$$\sec x - \cos x = \sin x \tan x$$

Rationalizing the denominator by using a conjugate is powerful.

Example 3: Verify

$$\frac{\sec x - 1}{1 - \cos x} = \sec x$$

Example 4: Verify

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