

## Trig Identities Quiz Review WS #1

### Reciprocal Identities:

$$\sin \theta = \frac{1}{\csc \theta}$$

$$\csc \theta = \frac{1}{\sin \theta}$$

$$\cos \theta = \frac{1}{\sec \theta}$$

$$\sec \theta = \frac{1}{\cos \theta}$$

$$\tan \theta = \frac{1}{\cot \theta}$$

$$\cot \theta = \frac{1}{\tan \theta}$$

### Quotient Identities:

$$\tan \theta = \frac{\sin \theta}{\cos \theta}$$

$$\cot \theta = \frac{\cos \theta}{\sin \theta}$$

### Pythagorean Identities:

$$\sin^2 \theta + \cos^2 \theta = 1$$

$$\tan^2 \theta + 1 = \sec^2 \theta$$

$$1 + \cot^2 \theta = \csc^2 \theta$$

Verify the Identity

1)  $\sin \theta \cot \theta \sec \theta = 1$

2)  $\csc^2 \theta - \cos^2 \theta \csc^2 \theta = 1$

3)  $\tan \theta \csc \theta \cos \theta = 1$

4)  $(\sin \theta - \cos \theta)(\sin \theta + \cos \theta) = 1 - 2\cos^2 \theta$

$$5) \frac{\sin \theta}{1 + \cos \theta} \cdot \frac{1 - \cos \theta}{1 - \cos \theta} = \frac{1 - \cos \theta}{\sin \theta}$$

$$6) \frac{\sec \theta - \cos \theta}{\sec \theta} = \sin^2 \theta$$

$$7) \frac{1 + \sec^2 \theta}{\sec^2 \theta} = 1 + \cos^2 \theta$$

$$(1 - \cos \theta)(1 + \cos \theta) = \frac{1}{\csc^2 \theta}$$

$$8) \frac{1}{1 - \cos x} + \frac{1}{1 + \cos x} = 2 \csc^2 x$$

$$\sin^2 \theta (1 + \cot^2 \theta) = 1$$