

Unit #3: Trigonometry

Topic: Trigonometric Identities

Objective: SWBAT simplify expression using trigonometric identities.

Warm Up #5:

Fill in the blanks for each of the trig identities shown below:

1) $\boxed{} = \frac{\sin\theta}{\cos\theta}$	2) $1 + \boxed{} = \csc^2\theta$
3) $\sec\theta = \frac{1}{\boxed{}}$	4) $\sin^2\theta + \cos^2\theta = \boxed{}$
5) $\boxed{} = \frac{\cos\theta}{\sin\theta}$	6) $1 + \tan^2\theta = \boxed{}$
7) $\csc\theta = \frac{1}{\boxed{}}$	8) $\boxed{} = \frac{1}{\tan\theta}$

Simplifying Expressions using Trigonometric Identities

One of the most common uses for the trigonometric identities is to be able to use them to simplify more complex expressions.

Example #1: Simplify $\sin x \cos^2 x - \sin x$

Example #2: Simplify $\frac{\sec^2 x - 1}{\sin^2 x}$

Problem Set #5: Simplify each of the following expressions using trigonometric identities.

1) $\cos x \sec x - \cos^2 x$

2) $(1 - \sin^2 x)(\sec x)$

3) $\tan^2 x(\csc^2 x - 1)$

4) $\sin x(\csc x - \sin x)$

5) $\sec^2 x(1 - \sin^2 x)$

6) $\frac{\tan^2 x}{\sec^2 x}$

7) $\frac{\csc \theta}{\sec \theta} + \frac{\cos \theta}{\sin \theta}$

8) $\frac{\sec^2 x - \tan^2 x + \tan x}{\sec x}$

9) $\frac{\sec^2 x - 1}{\sin^2 x}$

10) $\sec x - \tan x \sin x$

$$11) \frac{\sec x \sin x}{\tan x + \cot x}$$

$$12) \frac{\sec x}{\cos x} - \frac{\tan x}{\cot x}$$

$$13) \frac{\sec x \csc x}{\csc^2 x}$$

$$14) \frac{\sin^2 x - \cos^2 x}{\sin^2 x - \sin x \cos x}$$

$$15) \sin^2 x (\csc^2 x - 1)$$

$$16) \frac{1 + \csc x}{\sec x} - \cot x$$



Assignment(s): Finish packet #1-16

