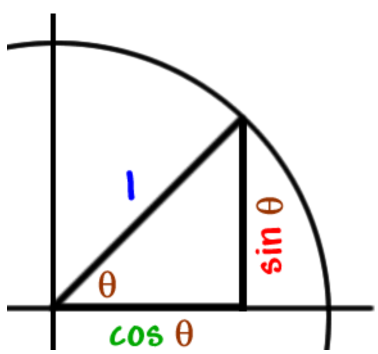
Name: Lukas Werner   5.1 Trig Identities   Date:________________

Objectives:	To utilize trig. identities to simplify more complex expressions
Vocabulary: • Identity	A statement of equivalent expressions that is true for all values in the domain.
Reciprocal Trigonometric Identities	$\sin\theta = \frac{1}{\csc\theta}$ $\cos\theta = \frac{1}{\sec\theta}$ $\tan\theta = \frac{1}{\cot\theta}$ $\csc\theta = \frac{1}{\sin\theta}$ $\sec\theta = \frac{1}{\cos\theta}$ $\cot\theta = \frac{1}{\tan\theta}$
Quotient Trigonometric Identities	$\tan\theta = \frac{\sin\theta}{\cos\theta}$ $\cot\theta = \frac{\cos\theta}{\sin\theta}$
Pythagorean Trigonometric Identities $\sin^2\Theta = (\sin\Theta)^2$	$\sin^2\Theta + \cos^2\Theta = 1$  $\frac{\sin^2\Theta}{\cos^2\Theta} + \frac{\cos^2\Theta}{\cos^2\Theta} = \frac{1}{\cos^2\Theta}$ $\tan^2\Theta + 1 = \sec^2\Theta$ $\frac{\sin^2\Theta}{\sin^2\Theta} + \frac{\cos^2\Theta}{\sin^2\Theta} = \frac{1}{\sin^2\Theta}$ $1 + \cot^2\Theta = \csc^2\Theta$

Name:______________________________ 5.1 Trig Identities Date:_________________

Simplify each expression using trig identities:

1. $\tan x \cos x$

$\frac{\sin x}{\cos x} \cdot \cos x = \sin x$

2. $\frac{1+\tan^2 p}{\csc^2 p}$

$\frac{\sec^2 p}{\csc^2 p} = \frac{\frac{1}{\cos^2 p}}{\frac{1}{\sin^2 p}} = \frac{\sin^2 p}{\cos^2 p} = \tan^2 p$

3. $\sin^2 \theta + \cos^2 \theta + \cot^2 \theta$

1 + cot^2 Θ

= csc^2 Θ

This is possible because sin^2 + cos^2 = 1

Name:______________________________ 5.1 Trig Identities Date:_________________

4. $\frac{\sin^2 x + \tan^2 x + \cos^2 x}{\sec x}$

sec^2 x

$\frac{\text{tan^2 x + 1}}{\text{sec x}}$

sec x

5. $\frac{1+\tan\theta}{1+\cot\theta}$

$\frac{\text{sec x}}{\text{csc x}}$