5.1 Fundamental Trig Identities
Target 6A: Verify, evaluate, and apply trigonometric identities and formulas

Review of Prior Concepts

Simplify.

a) $\dfrac{3x+6}{x^2+5x+6}$

b) $\dfrac{x}{2} + \dfrac{2}{x} - \dfrac{x}{4}$

More Practice

Simplifying Algebraic Expressions
http://www.purplemath.com/modules/rtnldefs3.htm
https://www.khanacademy.org/math/algebra2/rational-expressions-equations-and-functions/simplify-rational-expressions/v/simplifying-rational-expressions-1
http://www.mathwarehouse.com/algebra/rational-expression/how-to-simplify-rational-expressions.php
https://www.youtube.com/watch?v=5xgRFbkQYgE
https://www.youtube.com/watch?v=NjBvycGQX48

Simplify the following trig expressions. Check your answer in your graphing calculator.

As a class,

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

Now, you try:

1) $\dfrac{\cos^2 x}{1-\cos^2 x}$

As a class,

2) $\dfrac{\tan x}{\csc^2 x} + \dfrac{\tan x}{\sec^2 x}$

Now, you try:

2) $\dfrac{\sin x}{\cot^2 x} + \dfrac{\sin x}{\cos^2 x}$

Factor the expression as a single trigonometric function

As a class,   *Now, you try:*

3) $\cos x - 2\sin^2 x + 1$ **3)** $\sin^2 x + \dfrac{2}{\csc x} + 1$

ROW by ROW

Simplify each expression. Check your answer graphically.

A	B
$\dfrac{1 - \cos^2 \theta}{\sin \theta}$	$\dfrac{\sin^2 \theta \cot^2 \theta}{1 - \sin^2 \theta}$
$\cos x \csc x \, (\sec^2 x - 1)$	$\dfrac{\sec^2 x - 1}{\tan x}$

$\dfrac{\tan\beta + \cot\beta}{\cot\beta}$	$\cos\beta\,(\sec\beta - \cos\beta)$
$\dfrac{\tan\alpha - \tan\alpha\,\sin^2\alpha}{2\sin\alpha\cos\alpha}$	$\dfrac{\sec\alpha - \cos\alpha}{2\tan\alpha\sin\alpha}$

More Practice

Simplifying Trig Expressions

http://www.intmath.com/analytic-trigonometry/1-trigonometric-identities.php

http://www.mathguide.com/lessons2/TrigExpress.html

http://www.purplemath.com/modules/proving.htm

https://www.youtube.com/watch?v=CsfHFZL345M

https://www.youtube.com/watch?v=I4mcja8abDc

Homework Assignment
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