Spiral Review

Fill in the blank:

1. $1/\tan x =$ _____

2. $\sin^2 x +$ _____ $= 1$

3. $\cos(-x) =$ _____

4. $\sin x/\cos x =$ _____

Spiral Review

Fill in the blank:

1. $1/\tan x =$ $\cot x$

2. $\sin^2 x +$ $\cos^2 x$ $= 1$

3. $\cos(-x) =$ $\cos x$

4. $\sin x/\cos x =$ $\tan x$

Check your homework:

If there are questions, if you got it right can you write your work on the board? If no one got it right, circle it and we will go it next class.

HWQ 5.1

Simplify.

1.) $\sin x \csc x$

2.) $(1+\cot^2 x)(\cos^2 x)$

3.) $\cos x \cot x + \sin x$

4.) $(1+\tan x)^2$

p.357 5.2 Verifying Trigonometric Identities

Example 1: Use the fundamental identities to simplify each expression.

1.) $\sin^2\theta + \tan^2\theta + \cos^2\theta$

2.) $\dfrac{\tan(-\theta)}{\sec\theta}$

p.357 5.2 Verifying Trigonometric Identities

Example 1: Use the fundamental identities to simplify each expression.

1.) $\sin^2\theta + \tan^2\theta + \cos^2\theta$

2.) $\dfrac{\tan(-\theta)}{\sec\theta}$

$1+\tan^2\theta$

$\sec^2\theta$

$\dfrac{-\tan\theta}{\sec\theta}$

$\dfrac{\frac{-\sin\theta}{\cos\theta}}{\frac{1}{\cos\theta}} \rightarrow \dfrac{-\sin\theta}{\cos\theta} \cdot \dfrac{\cos\theta}{1}$

$-\sin\theta$

Students will be able to use the fundamental identities to simplify expressions.

3.) $(1 + \sin t)^2 + \cos^2 t$

4.) $\cos\beta\,(\sec\beta + \csc\beta)$

Students will be able to use the fundamental identities to simplify expressions.

3.) $(1 + \sin t)^2 + \cos^2 t$

4.) $\cos\beta\,(\sec\beta + \csc\beta)$

$1+2\sin t+\sin^2 t+\cos^2 t$

$1+2\sin t+1$

$2+2\sin t$ or $2(1+\sin t)$

$\cos\beta\sec\beta+\cos\beta\csc\beta$

$\cos\beta\cdot\frac{1}{\cos\beta}+\cos\beta\cdot\frac{1}{\sin\beta}$

$1+\cot\beta$

Students will be able to use the fundamental identities to simplify expressions.

5.) $\frac{1}{\sin x-1}-\frac{1}{\sin x+1}$

6.) $\frac{\sin^2 x}{\cos^2 x}+\sin x\csc x$

Students will be able to use the fundamental identities to simplify expressions.

5.) $\frac{1}{\sin x-1}-\frac{1}{\sin x+1}$ $\frac{\sin x+1}{\sin x+1}$ $\frac{\sin x-1}{\sin x-1}$

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

$\frac{2}{-\cos^2 x}$

$-2\sec^2 x$

6.) $\frac{\sin^2 x}{\cos^2 x}+\sin x\csc x$

$\tan^2 x+\sin x\cdot\frac{1}{\sin x}$

$\tan^2 x+1$

$\sec^2 x$

Students will be able to use the fundamental identities to verify the equation.

Example 2: Verify the identity.

1.) $\frac{\cot\theta}{\csc\theta} = \cos\theta$

2.) $\frac{\tan x}{\sec x} = \sin x$

Students will be able to use the fundamental identities to verify the equation.

Example 2: Verify the identity. *Prove that the left side = right!

1.) $\frac{\cot\theta}{\csc\theta} = \cos\theta$

$\dfrac{\frac{\cos\theta}{\sin\theta}}{\frac{1}{\sin\theta}} =$

$\frac{\cos\theta}{\sin\theta} \cdot \frac{\sin\theta}{1} =$

$\cos\theta = \cos\theta$ ✓

2.) $\frac{\tan x}{\sec x} = \sin x$

$\dfrac{\frac{\sin x}{\cos x}}{\frac{1}{\cos x}} =$

$\frac{\sin x}{\cos x} \cdot \frac{\cos x}{1} =$

$\sin x = \sin x$ ✓

Students will be able to use the fundamental identities to verify the equation.

3.) $\sin^2 x \sec^2 x + \sin^2 x \csc^2 x = \sec^2 x$

Students will be able to use the fundamental identities to verify the equation.

3.) $\sin^2 x \sec^2 x + \sin^2 x \csc^2 x = \sec^2 x$

$\sin^2 x \cdot \frac{1}{\cos^2 x} + \sin^2 x \cdot \frac{1}{\sin^2 x} =$

$\tan^2 x + 1 =$

$\sec^2 x = \sec^2 x$ ✓

Turn-in: worksheet

HW:
p.362 (11-20 all)