

\* Remember:

Honors Algebra II/Trig  
8.6 Day 1 Worksheet

The way I show isn't  
the only way.

Name: Key

Transform the left side into the right side.

1.  $\sec x \cot x \sin x = 1$

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

$$1 = 1 \checkmark$$

2.  $\cos^2 x \csc x \sec x = \cot x$

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

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

$$\cot x = \cot x$$

3.  $\csc x - \sin x = \cot x \cos x$

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

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

$$\frac{\cos^2 x}{\sin x} =$$

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

$$\cot x \cos x = \cot x \cos x$$

4.  $\cos x (\sec x + \cos x \csc^2 x) = \csc^2 x$

$$\cos x \left( \frac{1}{\cos x} + \cos x \cdot \frac{1}{\sin^2 x} \right) =$$

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

$$1 + \cot^2 x =$$

$$\csc^2 x = \csc^2 x$$

5.  $(\cos x - \sin x)^2 = 1 - 2 \cos x \sin x$

$$(\cos x - \sin x)(\cos x - \sin x) =$$

$$\cos^2 x - 2 \cos x \sin x + \sin^2 x =$$

$$1 - 2 \cos x \sin x = 1 - 2 \cos x \sin x$$

6.  $(\cos x - \sec x)^2 = \tan^2 x - \sin^2 x$

$$(\cos x - \sec x)(\cos x - \sec x) =$$

$$\cos^2 x - 2 \cos x \sec x + \sec^2 x =$$

$$\cos^2 x - 2 + \sec^2 x =$$

$$1 - \sin^2 x - 2 + \sec^2 x =$$

$$-\sin^2 x - 1 + \sec^2 x =$$

$$-\sin^2 x - 1 + \tan^2 x + 1 =$$

$$\tan^2 x - \sin^2 x = \tan^2 x - \sin^2 x$$

$$7. \frac{\sec^2 x - 1}{\sin x} = \tan x \sec x$$

$$\frac{\tan^2 x}{\sin x} =$$

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

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

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

$$\tan x \sec x = \tan x \sec x$$

$$8. \frac{\overset{\sin x}{\cancel{\sin x}} \csc x - \overset{\cos x}{\cancel{\cos x}} \frac{\cos x}{\sin x}}{\overset{\sin x}{\cancel{\sin x}} \cos x} = \tan x$$

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

$$\frac{\sin^2 x}{\cos x \sin x} =$$

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

$$\tan x = \tan x$$

9. Write out all six trigonometric expressions that equal 1.

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

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

$$\csc^2 x - \cot^2 x = 1$$

$$(\tan x)(\cot x) = 1$$

$$(\sin x)(\csc x) = 1$$

$$(\cos x)(\sec x) = 1$$