

Daily Agenda

Learning Target: I can use the properties of trig functions to prove a trig identity.

Homework

8.6 Day 2 Worksheet

Assessment

8.6 Quiz - 3/7

Pure mathematics is, in its way, the poetry of logical ideas.
-Albert Einstein

Nov 15-8:24 PM

$$(\sec x + 1)(\sec x - 1) = \tan^2 x$$

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

$$\tan^2 x = \tan^2 x$$

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

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

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

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

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

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

Feb 28-11:03 AM

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

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

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

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

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

Feb 28-11:07 AM

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

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

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

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

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

Feb 28-11:09 AM

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

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

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

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

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

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

Feb 28-11:13 AM

8.6 Trig Identities

We prove a trig identity by transforming one side of the equation into the other

We cannot change both sides

Mar 15-9:06 AM

Strategies for Proving Trig Identities

Algebraic

- add fractions
- factor
- multiply by a form of 1 (common denominators, conjugates)
- distribute

Trigonometric

- substitute other trig functions
- if squares, think of Pythagorean
- replace functions to ones you see in answer

Mar 19-2:01 PM

8.6 Trig Identities

Prove the equation is an identity

$$\begin{aligned} \cos^4 x - \sin^4 x &= 1 - 2\sin^2 x \\ (\cos^2 x - \sin^2 x)(\cos^2 x + \sin^2 x) &= \\ (\cos^2 x - \sin^2 x)(1) &= \\ 1 - \sin^2 x - \sin^2 x &= \\ 1 - 2\sin^2 x &= 1 - 2\sin^2 x \end{aligned} \quad \left| \begin{array}{l} a^4 - b^4 \end{array} \right.$$

Mar 15-9:06 AM

8.6 Trig Identities

Prove the equation is an identity

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

$$\begin{aligned} \frac{1 - \sin^2 x}{\cos x \sin x} &= \\ \frac{\cos^2 x}{\cancel{\cos x} \sin x} &= \\ \frac{\cos x}{\sin x} &= \\ \cot x &= \cot x \end{aligned}$$

Mar 15-9:06 AM

$$\begin{aligned} 2\cos^2 x - 5\cos x - 3 & \\ 2a^2 - 5a - 3 & \\ (2a + 1)(a - 3) & \\ (2\cos x + 1)(\cos x - 3) & \end{aligned} \quad \left| \begin{array}{l} \cos^3 x + \cos x \sin x \\ \cos x (\cos^2 x + \sin x) \end{array} \right.$$

Feb 28-11:34 AM

With your table...

Summarize how you would begin to solve a trig identity. What is your strategy?

Mar 19-8:53 AM