

Trig 7.2

Use basic trig identities to verify (prove it...)
Find numerical values of trig functions

parking lot

identity

CSI

verify

Identity sorting activ.

"I'm not sure what to do next. But here is something I know how to do..."

WB (3)

$$\sin^3 x - \cos^3 x = (1 + \sin x \cos x)(\sin x - \cos x)$$

$$\begin{array}{cc} \downarrow & \downarrow \\ \sin x & \cos x \\ A & B \end{array}$$

$$\cancel{(\sin x - \cos x)} \left(\sin^2 x + \overbrace{\sin x \cos x}^{1 + \sin x \cos x} + \cos^2 x \right) = \underbrace{(1 + \sin x \cos x)}_{\text{}} \cancel{(\sin x - \cos x)}$$

$$\begin{array}{cc} A^3 - B^3 = (A - B)(A^2 + AB + B^2) = \\ \uparrow \quad \uparrow \\ A \quad B \end{array}$$

$$\begin{pmatrix} WB \\ 2 \end{pmatrix} \frac{1}{(\sin y - 1)} - \frac{1}{(\sin y + 1)} = -2 \sec^2 y$$

$$\frac{-2 \cdot 1}{\cos^2 y} = \frac{1(\sin y + 1) - 1(\sin y - 1)}{(\sin y - 1)(\sin y + 1)}$$

$$\frac{\cancel{\sin y} + 1 - \cancel{\sin y} + 1}{(\sin y - 1)(\sin y + 1)} = \frac{-2}{\cos^2 y}$$

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

$$-\frac{2}{\cos^2 y} = \frac{-2}{\cos^2 y}$$

<https://www.youtube.com/watch?v=5swxGdLtayw>

**Suggestions
for Verifying
Trigonometric
Identities**

- Transform the more complicated side of the equation into the simpler side.
- Substitute one or more basic trigonometric identities to simplify expressions.
- Factor or multiply to simplify expressions.
- Multiply expressions by an expression equal to 1.
- Express all trigonometric functions in terms of sine and cosine.

•All the rules of algebra (factoring, distributive prop. etc) apply

Goal: get both sides to be identical

CSI...
whiteboards

Verify that each equation is an identity.

5. $\cos x = \frac{\cot x}{\csc x}$

Get both sides to be the same...
All the rules of algebra apply.

...

Example 1 Verify that $\sec^2 x - \tan x \cot x = \tan^2 x$ is an identity.

3 Verify that $\frac{\sin A}{\csc A} + \frac{\cos A}{\sec A} = \csc^2 A - \cot^2 A$ is an identity.

$$6. \frac{1}{\tan x + \sec x} = \frac{\cos x}{\sin x + 1}$$

9. $(\sin A - \cos A)^2 = 1 - 2 \sin^2 A \cot A$

identity sort

Sort of like an identity (simplify first) then answer the question

- 4 Find a numerical value of one trigonometric function of x if $\frac{\cot x}{\cos x} = 2$.

$$\frac{\frac{1}{\cancel{\cos x}} \cancel{\cos x}}{\sin x} = 2$$

$\cos x$

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

$$\boxed{\csc x = 2}$$

WB 7.2

$$\sin x =$$

$$\tan =$$

