

More Intense Trigonometric Identities Proves (Pre Cal Honors 7 1 Part II)

Lesson 225 | Precalculus | Fundamental trigonometric identities

<https://www.youtube.com/watch?v=aAaHhOy-7VA>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Simplify $4(1 - \cos^2 \theta) + 20\sin^2 \theta$ and name the identity.

02

Prove that $8(\sec^2 \theta - 1)/\tan \theta = 8\tan \theta$. State where the original expression is defined.

03

Prove that $72(\sec^2 \theta - 1)/\tan \theta = 72\tan \theta$. State where the original expression is defined.

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04

Simplify $5(1 - \cos^2 \theta) + 35\sin^2 \theta$ and name the identity.

05

Prove that $24(\sec^2 \theta - 1)/\tan \theta = 24\tan \theta$. State where the original expression is defined.

06

Prove that $168(\sec^2 \theta - 1)/\tan \theta = 168\tan \theta$. State where the original expression is defined.

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01

Simplify $4(1-\cos^2 \theta)+20\sin^2 \theta$ and name the identity.

Use $1-\cos^2 \theta=\sin^2 \theta$. Result $(4+20)\sin^2 \theta=24\sin^2 \theta$; valid for every real θ .

02

Prove that $8(\sec^2 \theta - 1)/\tan \theta = 8\tan \theta$. State where the original expression is defined.

$\sec^2 \theta - 1 = \tan^2 \theta$. For $\tan \theta \neq 0$, $8\tan^2 \theta / \tan \theta = 8\tan \theta$. Require $\cos \theta \neq 0$ and $\sin \theta \neq 0$; excluded angles remain excluded.

03

Prove that $72(\sec^2 \theta - 1)/\tan \theta = 72\tan \theta$. State where the original expression is defined.

$\sec^2 \theta - 1 = \tan^2 \theta$. For $\tan \theta \neq 0$, $72\tan^2 \theta / \tan \theta = 72\tan \theta$. Require $\cos \theta \neq 0$ and $\sin \theta \neq 0$; excluded angles remain excluded.

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04

Simplify $5(1-\cos^2 \theta)+35\sin^2 \theta$ and name the identity.

Use $1-\cos^2 \theta=\sin^2 \theta$. Result $(5+35)\sin^2 \theta=40\sin^2 \theta$; valid for every real θ .

05

Prove that $24(\sec^2 \theta - 1)/\tan \theta = 24\tan \theta$. State where the original expression is defined.

$\sec^2 \theta - 1 = \tan^2 \theta$. For $\tan \theta \neq 0$, $24\tan^2 \theta / \tan \theta = 24\tan \theta$. Require $\cos \theta \neq 0$ and $\sin \theta \neq 0$; excluded angles remain excluded.

06

Prove that $168(\sec^2 \theta - 1)/\tan \theta = 168\tan \theta$. State where the original expression is defined.

$\sec^2 \theta - 1 = \tan^2 \theta$. For $\tan \theta \neq 0$, $168\tan^2 \theta / \tan \theta = 168\tan \theta$. Require $\cos \theta \neq 0$ and $\sin \theta \neq 0$; excluded angles remain excluded.