

Pre Calculus 7.1 Fundamental Trigonometric Identities

Lesson 194 | Precalculus | Fundamental trigonometric identities

<https://www.youtube.com/watch?v=PqdRgA3zQaw>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Simplify $7(1 - \cos^2 \theta) + 14\sin^2 \theta$ and name the identity.

02

Prove that $52(\sec^2 \theta - 1)/\tan \theta = 52\tan \theta$. State where the original expression is defined.

03

Prove that $65(\sec^2 \theta - 1)/\tan \theta = 65\tan \theta$. State where the original expression is defined.

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04

Simplify $5(1 - \cos^2 \theta) + 10\sin^2 \theta$ and name the identity.

05

Prove that $15(\sec^2 \theta - 1)/\tan \theta = 15\tan \theta$. State where the original expression is defined.

06

Prove that $55(\sec^2 \theta - 1)/\tan \theta = 55\tan \theta$. State where the original expression is defined.

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01

Simplify $7(1-\cos^2 \theta)+14\sin^2 \theta$ and name the identity.

Use $1-\cos^2 \theta=\sin^2 \theta$. Result $(7+14)\sin^2 \theta=21\sin^2 \theta$; valid for every real θ .

02

Prove that $52(\sec^2 \theta - 1)/\tan \theta = 52\tan \theta$. State where the original expression is defined.

$\sec^2 \theta - 1 = \tan^2 \theta$. For $\tan \theta \neq 0$, $52\tan^2 \theta / \tan \theta = 52\tan \theta$. Require $\cos \theta \neq 0$ and $\sin \theta \neq 0$; excluded angles remain excluded.

03

Prove that $65(\sec^2 \theta - 1)/\tan \theta = 65\tan \theta$. State where the original expression is defined.

$\sec^2 \theta - 1 = \tan^2 \theta$. For $\tan \theta \neq 0$, $65\tan^2 \theta / \tan \theta = 65\tan \theta$. Require $\cos \theta \neq 0$ and $\sin \theta \neq 0$; excluded angles remain excluded.

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04

Simplify $5(1 - \cos^2 \theta) + 10\sin^2 \theta$ and name the identity.

Use $1 - \cos^2 \theta = \sin^2 \theta$. Result $(5 + 10)\sin^2 \theta = 15\sin^2 \theta$; valid for every real θ .

05

Prove that $15(\sec^2 \theta - 1)/\tan \theta = 15\tan \theta$. State where the original expression is defined.

$\sec^2 \theta - 1 = \tan^2 \theta$. For $\tan \theta \neq 0$, $15\tan^2 \theta / \tan \theta = 15\tan \theta$. Require $\cos \theta \neq 0$ and $\sin \theta \neq 0$; excluded angles remain excluded.

06

Prove that $55(\sec^2 \theta - 1)/\tan \theta = 55\tan \theta$. State where the original expression is defined.

$\sec^2 \theta - 1 = \tan^2 \theta$. For $\tan \theta \neq 0$, $55\tan^2 \theta / \tan \theta = 55\tan \theta$. Require $\cos \theta \neq 0$ and $\sin \theta \neq 0$; excluded angles remain excluded.