

How do you prove $\csc^2 x \tan^2 x - 1 = \tan^2 x$?

Trigonometry Trigonometric Identities and Equations Proving Identities

1 Answer



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Prove trig identity

Explanation:

$$\begin{aligned} \left(\frac{1}{\sin^2 x} \right) \left(\frac{\sin^2 x}{\cos^2 x} \right) - 1 &= \\ = \frac{\sin^2 x - \sin^2 x \cdot \cos^2 x}{\sin^2 x \cdot \cos^2 x} &= \\ \frac{(\sin^2 x)(1 - \cos^2 x)}{\sin^2 x \cdot \cos^2 x} &= \\ = \frac{\sin^2 x}{\cos^2 x} = \tan^2 x \end{aligned}$$

[Answer link](#)

Related questions

What does it mean to prove a trigonometric identity?

How do you prove $\csc \theta \times \tan \theta = \sec \theta$?

How do you prove $(1 - \cos^2 x)(1 + \cot^2 x) = 1$?

How do you show that $2 \sin x \cos x = \sin 2x$? is true for $\frac{5\pi}{6}$?

How do you prove that $\sec x \cot x = \csc x$?

How do you prove that $\cos 2x(1 + \tan 2x) = 1$?

How do you prove that $\frac{2 \sin x}{\sec x(\cos 4x - \sin 4x)} = \tan 2x$?

How do you verify the identity: $-\cot x = \frac{\sin 3x + \sin x}{\cos 3x - \cos x}$?

How do you prove that $\frac{\tan x + \cos x}{1 + \sin x} = \sec x$?

How do you prove the identity $\frac{\sin x - \cos x}{\sin x + \cos x} = \frac{2 \sin^2 x - 1}{1 + 2 \sin x \cos x}$?

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