

Proving Trigonometric Identities



CUT & PASTE

Proving Trig Identities

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

$$\frac{1}{\cos x} - \frac{\sin x}{\cos x}$$

$$\frac{1 - \sin x}{\cos x} \cdot \frac{\cos x}{\cos x}$$

$$\frac{(1 - \sin x)(\cos x)}{\cos^2 x}$$

$$\frac{(1 - \sin x)(\cos x)}{1 - \sin^2 x}$$

$$\frac{(1 - \sin x)(\cos x)}{(1 + \sin x)(1 - \sin x)}$$

$$\frac{\cos x}{1 + \sin x}$$

Proving Trig Identities

2. $\frac{1 + \sin \theta}{\cos \theta} + \frac{\cos \theta}{1 + \sin \theta} = 2 \sec \theta$

$$\frac{(1 + \sin \theta)^2 + \cos^2 \theta}{\cos \theta (1 + \sin \theta)}$$

$$\frac{1 + 2 \sin \theta + \sin^2 \theta + \cos^2 \theta}{\cos \theta (1 + \sin \theta)}$$

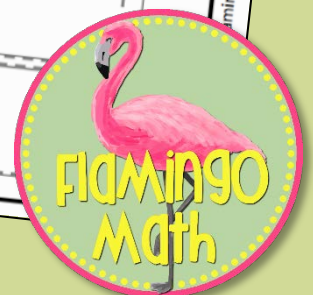
$$\frac{1 + 2 \sin \theta + 1}{\cos \theta (1 + \sin \theta)}$$

$$\frac{2(1 + \sin \theta)}{\cos \theta (1 + \sin \theta)}$$

$$\frac{2}{\cos \theta}$$

$$2 \sec \theta$$

FREEBIE!



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PROVING TRIG IDENTITIES FREEBIE

This is a Free Cut & Paste activity for students enrolled in **PreCalculus or Trigonometry**. The lesson includes 2 trigonometric identities. Students are provided with the scrambled steps on a separate page to cut and paste the pieces in the correct progression to verify the identity.

This product is a sample of my PROVING TRIG IDENTITIES product.

Proving Trig Identities

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

Proving Trig Identities

2. $\frac{1 + \sin \theta}{\cos \theta} + \frac{\cos \theta}{1 + \sin \theta} = 2 \sec \theta$

Directions: Cut out each piece and paste them to the identity in the correct sequence.

Proof #1

$$\frac{(1 - \sin x)(\cos x)}{(1 + \sin x)(1 - \sin x)}$$

$$\frac{\cos x}{1 + \sin x}$$

$$\frac{1}{\cos x} - \frac{\sin x}{\cos x}$$

$$\frac{1 - \sin x}{\cos x} \cdot \frac{\cos x}{\cos x}$$

$$\frac{(1 - \sin x)(\cos x)}{1 - \sin^2 x}$$

$$\frac{(1 - \sin x)(\cos x)}{\cos^2 x}$$

Proof #2

$$\frac{1 + 2 \sin \theta + 1}{\cos \theta(1 + \sin \theta)}$$

$$\frac{1 + 2 \sin \theta + \sin^2 \theta + \cos^2 \theta}{\cos x(1 + \sin \theta)}$$

$$\frac{2}{\cos \theta}$$

$$2 \sec \theta$$

$$\frac{(1 + \sin \theta)^2 + \cos^2 \theta}{\cos \theta(1 + \sin \theta)}$$

$$\frac{2(1 + \sin \theta)}{\cos \theta(1 + \sin \theta)}$$