

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

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

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

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

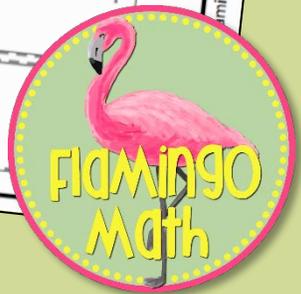
$\frac{2(1 + \sin \theta)}{\cos \theta(1 + \sin \theta)}$

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

$2 \sec \theta$

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**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

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

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

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

$$2 \sec \theta$$

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

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

## Proving Trig Identities

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

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

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

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

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

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

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

## Proving Trig Identities

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

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

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

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

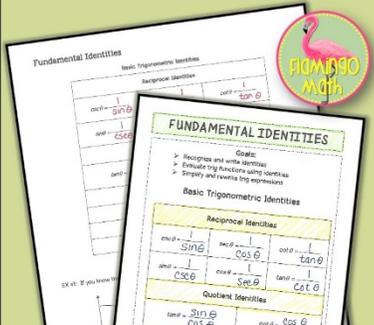
$$\frac{2(1 + \sin \theta)}{\cos \theta(1 + \sin \theta)}$$

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

$$2 \sec \theta$$

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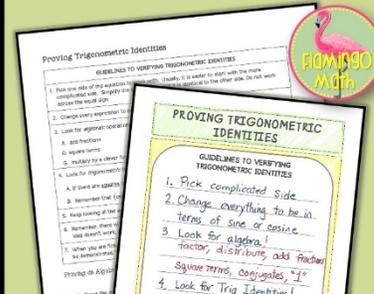


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**Trigonometric Identities**

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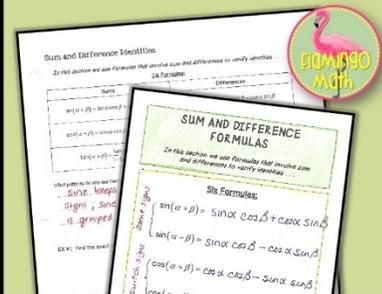


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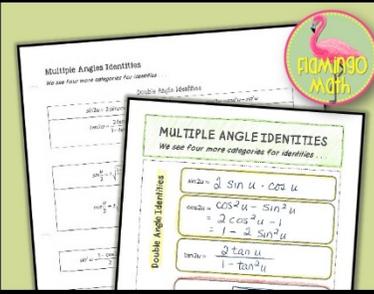


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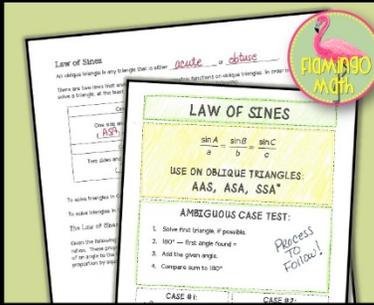


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**Multiple Angle Identities**

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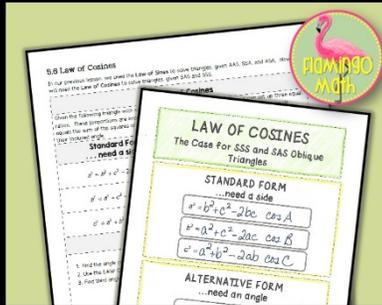


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**Law of Sines**

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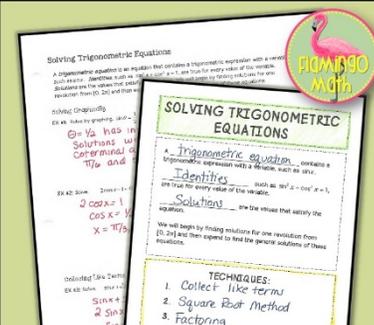


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**Law of Cosines**

**PRECALCULUS**

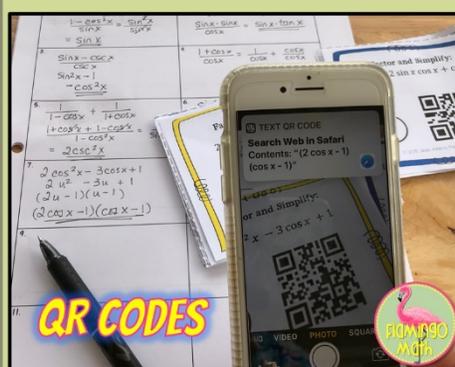


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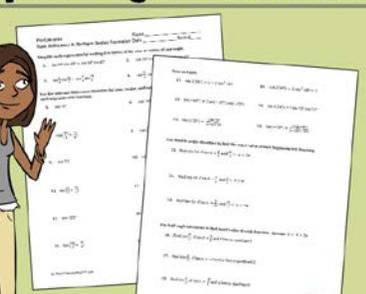
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