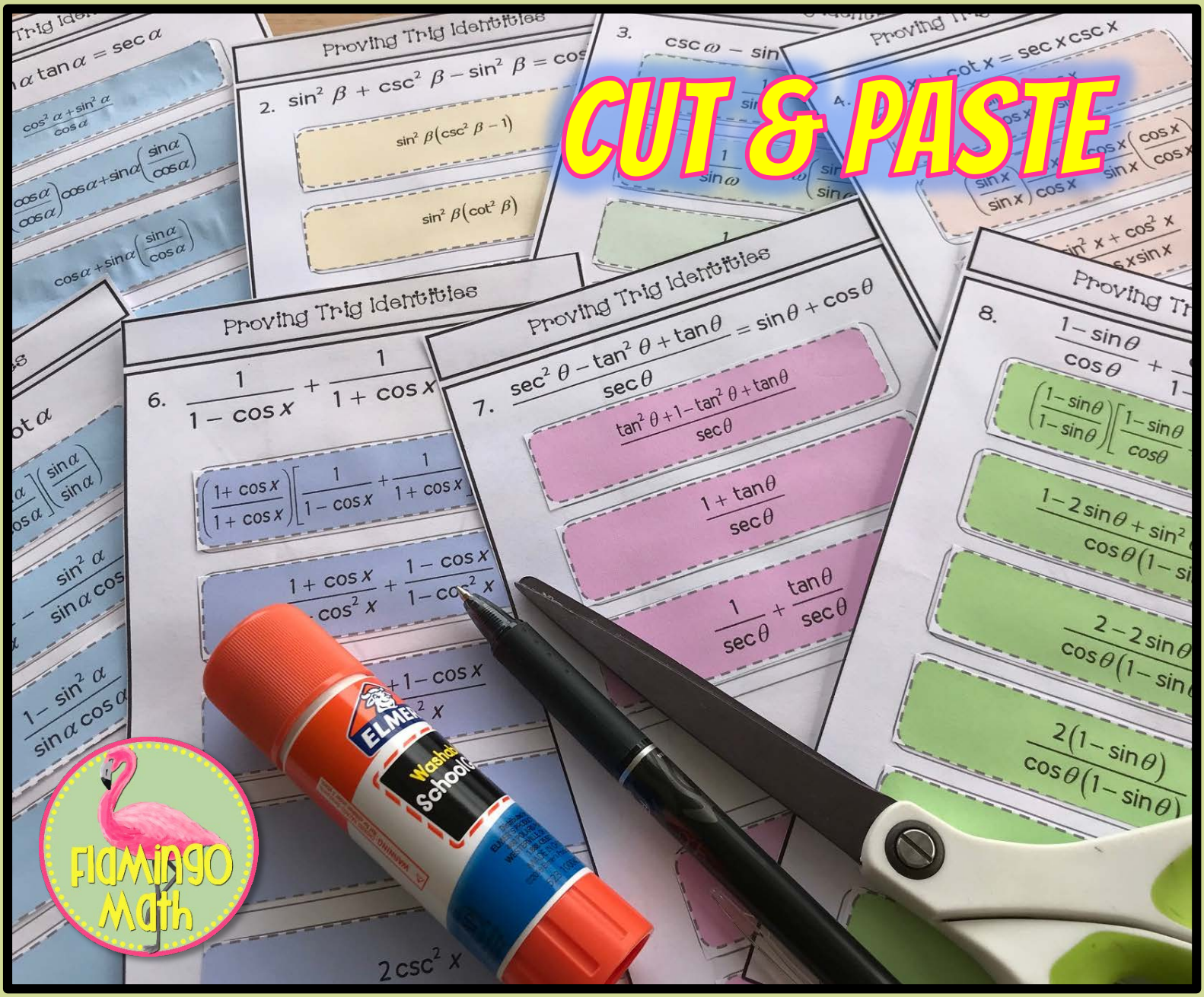
Proving Trigonometric Identities



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PROVING TRIG IDENTITIES

This is a **Cut & Paste Activity** for students enrolled in **Pre Calculus or Trigonometry**. The lesson includes 8 trigonometric identities. Students are provided with the scrambled, correct steps on a separate page to cut and paste the pieces in the correct progression to verify the identity.

This product is also included in my BE INTERACTIVE GOOGLE SLIDES product. If your classroom is one-to-one you should take a look.

You can choose two options for printing.

1. Print the cut-and-paste proof pieces #1-8 on white paper and the proof blanks on colored paper. All 8 are available on two sheets of paper.)
2. Print the cut-and-paste proof pieces on colored paper and the proof blanks on white paper. (There are four per page, this way you can print proof #1 on a single color, proof #2 on a different color, and so on. Simply cut them apart in quarter sheets for student use.)

Proving Trig Identities

1. $\cos\alpha + \sin\alpha \tan\alpha = \sec\alpha$

Proving Trig Identities

2. $\sin^2\beta + \csc^2\beta - $

Proving Trig Identities

3. $\csc\omega - \sin\omega = \cot\omega \cos\omega$

Proving Trig Identities

4. $\tan x + \cot x = \sec x \csc x$

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CUT & PASTE PIECES

Proof #6

$\frac{1+\cos x}{1-\cos^2 x} + \frac{1-\cos x}{1-\cos^2 x}$

$2\csc^2 x$

$\left(\frac{1+\cos x}{1+\cos x}\right)\left[\frac{1}{1-\cos x} + \frac{1}{1+\cos x}\right]\left(\frac{1-\cos x}{1-\cos x}\right)$

$\frac{2}{\sin^2 x}$

$\frac{1+\cos x+1-\cos x}{1-\cos^2 x}$

Proof #5

$\cot\alpha$

$\frac{\cos^2\alpha}{\sin\alpha\cos\alpha}$

$\frac{\cos\alpha}{\sin\alpha}$

$\frac{1-\sin^2\alpha}{\sin\alpha\cos\alpha}$

$\left(\frac{\cos\alpha}{\cos\alpha}\right)\left(\frac{\sec\alpha}{\sin\alpha} - \frac{\sin\alpha}{\cos\alpha}\right)\left(\frac{\sin\alpha}{\sin\alpha}\right)$

$\frac{\sec\alpha\cos\alpha}{\sin\alpha\cos\alpha} - \frac{\sin^2\alpha}{\sin\alpha\cos\alpha}$

Proof #8

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

$\left(\frac{1-\sin\theta}{1-\sin\theta}\right)\left[\frac{1-\sin\theta}{\cos\theta} + \frac{\cos\theta}{1-\sin\theta}\right]\left(\frac{\cos\theta}{\cos\theta}\right)$

$2\sec\theta$

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

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

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

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Proof #1

$\frac{\cos^2\alpha+\sin^2\alpha}{\cos\alpha}$

$\left(\frac{\cos\alpha}{\cos\alpha}\right)\cos\alpha + \sin\alpha\left(\frac{\sin\alpha}{\cos\alpha}\right)$

$\frac{1}{\cos\alpha}$

$\sec\alpha$

$\cos\alpha + \sin\alpha\left(\frac{\sin\alpha}{\cos\alpha}\right)$

Proof #2

$\cos^2\beta$

$\sin^2\beta\left(\frac{\cos^2\beta}{\sin^2\beta}\right)$

$\sin^2\beta(\cot^2\beta)$

$\sin^2\beta(\csc^2\beta - 1)$

Proof #3

$\frac{\cos\omega}{\sin\omega}\cdot\cos\omega$

$\cot\omega\cdot\cos\omega$

$\frac{\cos^2\omega}{\sin\omega}$

$\frac{1-\sin^2\omega}{\sin\omega}$

$\frac{1}{\sin\omega} - \sin\omega$

$\frac{1}{\sin\omega} - \sin\omega\left(\frac{\sin\omega}{\sin\omega}\right)$

Proof #4

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

$\frac{\sin^2 x+\cos^2 x}{\cos x\sin x}$

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

$\left(\frac{\sin x}{\sin x}\right)\left(\frac{\sin x}{\cos x} + \frac{\cos x}{\sin x}\right)\left(\frac{\cos x}{\cos x}\right)$

$\sec x\cdot\csc x$

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

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Proving Trig Identities

7. $\frac{\sec^2\theta - \tan^2\theta + \tan\theta}{\sec\theta} = \sin\theta + \cos\theta$

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

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Proving Trig Identities

$\frac{\sin\alpha}{\cos\alpha} = \cot\alpha$

Proving Trig Identities

6. $\frac{1}{1-\cos x} + \frac{1}{1+\cos x} = 2\csc^2 x$

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