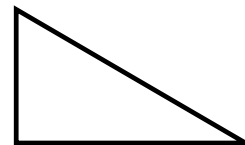# 13-1A Trigonometric Identities

Trigonometric Identity: an equation involving trigonometric functions that is true for all values for which every expression in the equation is defined.

Trigonometric Identities	
Quotient Identities	
Reciprocal Identities	

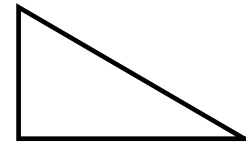| Pythagorean Identities		

Trigonometric Identities - prove it!

Quotient Identities

$$\tan\theta = \frac{\sin\theta}{\cos\theta}$$

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

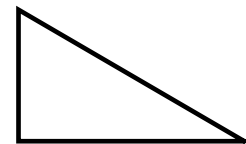**Trigonometric Identities - prove it!**
Reciprocal Identities

$$\csc\theta = \frac{1}{\sin\theta} \qquad \sec\theta = \frac{1}{\cos\theta} \qquad \cot\theta = \frac{1}{\tan\theta}$$

Trigonometric Identities - prove it!
Pythagorean Identities

$$\cos^2\theta + \sin^2\theta = 1 \qquad \tan^2\theta + 1 = \sec^2\theta \qquad \cot^2\theta + 1 = \csc^2\theta$$

Using trig. identities to find a value

1. Find tanθ if secθ = -2   and   180º < θ < 270º

2. Find sinθ if cosθ = 1/2   and   270º < θ < 360º

3. Find cscθ if cosθ = 2/3   and   90° < θ < 270°

How to use trigonometric identities to find exact trig. values

- Determine which trig. identity/identities to use.

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- Use the trig. identity/identities as formulas.

- Use substitution and solve.

- Determine the sign of the trig. value based on the quadrant.