

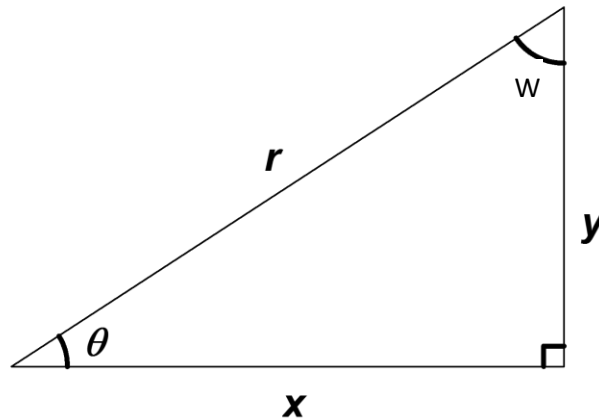
Creating Trig Identities

To the right is a typical right triangle. Use the variables provided to find the following trigonometric ratios.

$\sin \theta =$

$\cos \theta =$

$\tan \theta =$



Identity: A rule that is always true, no matter the input. More true than an equation, which is only true for certain inputs.

Create an identity between tangent and sine and cosine: (hint: don't worry about the identity part right now, just try and create an equation that shows how the 3 trig functions compare)

Tangent Identity:

Proving/Finding the Pythagorean Identity

1. Apply the Pythagorean Theorem to the triangle and create a true statement.
2. Divide both sides of the equation by r^2 .
3. Simplify the equation so that there are only two exponents.
4. Rewrite the equation only using θ . (x , y , and r cannot appear in the equation.)

Pythagorean Identity:

Use the tangent and Pythagorean identities to simplify the following expressions as much possible.

1. $\cos^2\theta \tan^2\theta + \cos^2\theta$

2. $\cos^2\theta - 1$

3. $6(\cos^2\theta + \sin^2\theta) - 4$

4. $\cos\theta \sin^2\theta - \cos\theta$

5. $\frac{\sin x \cos x}{1 - \cos^2 x}$

6. $-\sin\theta \cos\theta \tan\theta - \cos^2\theta$