

10.3: Verify Trigonometric Identities

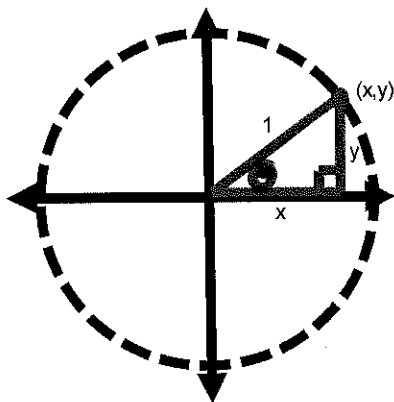
Directions: Fill in the blanks.

Reciprocal Identities

$$\csc \theta = \frac{1}{\sin \theta}$$

$$\sec \theta = \frac{1}{\cos \theta}$$

$$\cot \theta = \frac{1}{\tan \theta}$$



$$\sin \theta = \frac{y}{1}$$

$$\cos \theta = \frac{x}{1}$$

$$\tan \theta = \frac{y}{x}$$

Solve for y.

$$y = \sin \theta$$

Solve for x.

$$x = \cos \theta$$

Tangent and Cotangent Identities

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

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

Pythagorean Identities

$$x^2 + y^2 = 1$$

$$\cos^2 \theta + \sin^2 \theta = 1$$

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

$$1 + \tan^2 \theta = \sec^2 \theta$$

$$\cot^2 \theta + 1 = \csc^2 \theta$$