

# TRIGONOMETRIC IDENTITIES FORMULA SHEET

## RECIPROCAL IDENTITIES

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

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

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

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

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

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

## MORE RECIPROCAL IDENTITIES

$$\sin \theta \csc \theta = 1$$

$$\cos \theta \sec \theta = 1$$

$$\tan \theta \cot \theta = 1$$

## QUOTIENT IDENTITIES

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

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

## PYTHAGOREAN IDENTITIES

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

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

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

## EXTENSION OF PYTHAGOREAN IDENTITIES

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

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