

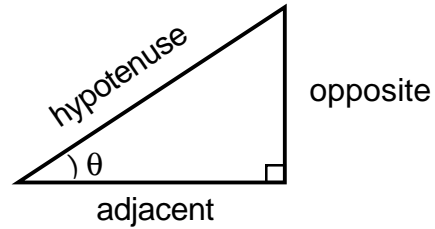


Math Study Strategies

Trigonometry Functions

Definition of the Six Trig Functions

$$\begin{aligned} \sin \theta &= \frac{\text{opp}}{\text{hyp}} & \csc \theta &= \frac{\text{hyp}}{\text{opp}} \\ \cos \theta &= \frac{\text{adj}}{\text{hyp}} & \sec \theta &= \frac{\text{hyp}}{\text{adj}} \\ \tan \theta &= \frac{\text{opp}}{\text{adj}} & \cot \theta &= \frac{\text{adj}}{\text{opp}} \end{aligned}$$



Note: To help you remember the identities above, think of the phrase below.

“SOH-CAH-TOA”

Meaning:

SOH Sin = **O**pposite over **H**ypotenuse

CAH Cos = **A**djacent over **H**ypotenuse

TOA Tan = **O**pposite over **A**djacent

Reciprocal Identities

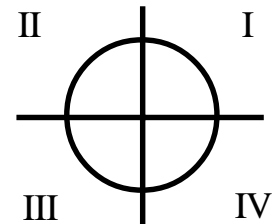
$$\begin{aligned} \sin \theta &= \frac{1}{\csc \theta} & \cos \theta &= \frac{1}{\sec \theta} & \tan \theta &= \frac{1}{\cot \theta} \\ \csc \theta &= \frac{1}{\sin \theta} & \sec \theta &= \frac{1}{\cos \theta} & \cot \theta &= \frac{1}{\tan \theta} \end{aligned}$$

Tan & Cot Identities

$$\begin{aligned} \tan \theta &= \frac{\sin \theta}{\cos \theta} \\ \cot \theta &= \frac{\cos \theta}{\sin \theta} \end{aligned}$$

Signs of the Trig Functions in the Four Quadrants

Quadrant	sin, csc	cos, sec	tan, cot
I	+	+	+
II	+	-	-
III	-	-	+
IV	-	+	-



Note: To help you remember the signs above, think of the phrase below.

All Students **T**ake **C**alculus

Meaning:

All trig functions (sin, cos, tan, sec, csc, cot) are **positive** in the **first** quadrant

Sine is **positive** in the **second** quadrant

Tangent is **positive** in the **third** quadrant

Cosine is **positive** in the **fourth** quadrant