

Trigonometric Functions According to Quadrants (BOW TIE)

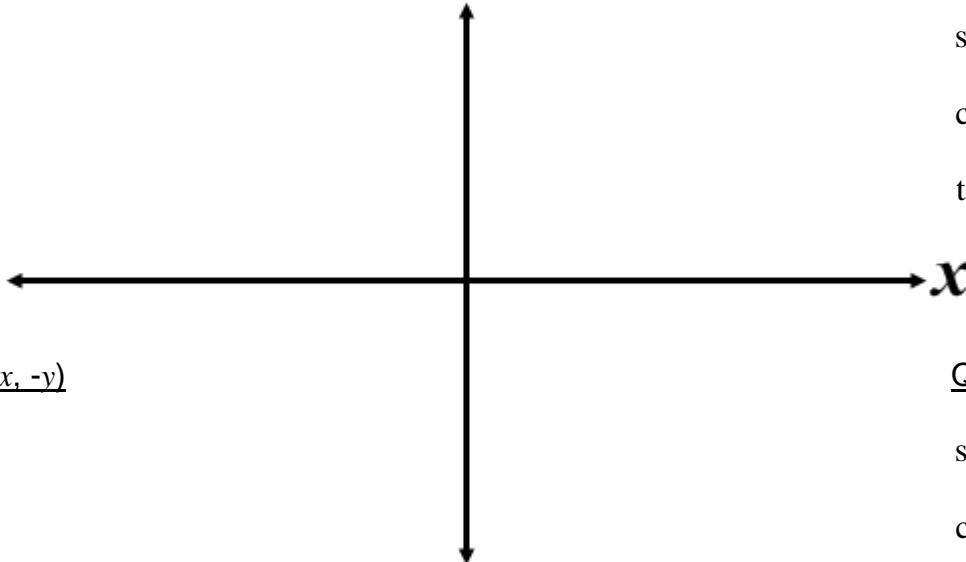
Quadrant II $(-x, y)$

$$\sin \theta =$$

$$\cos \theta =$$

$$\tan \theta =$$

y



Quadrant I (x, y)

$$\sin \theta =$$

$$\cos \theta =$$

$$\tan \theta =$$

Quadrant III $(-x, -y)$

$$\sin \theta =$$

$$\cos \theta =$$

$$\tan \theta =$$

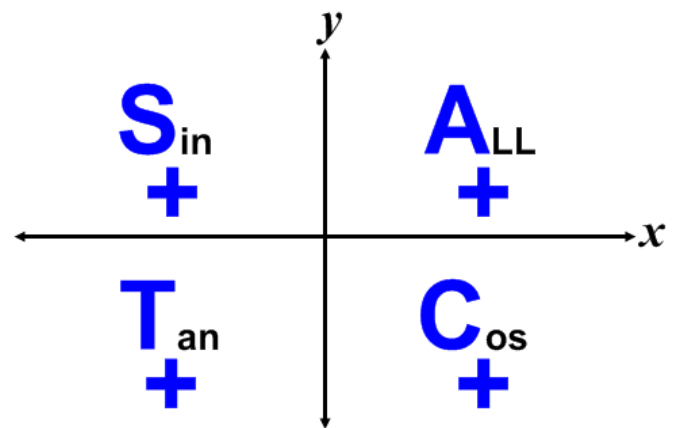
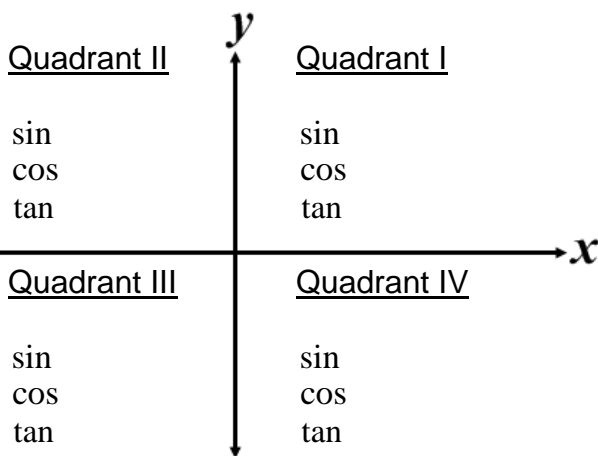
Quadrant IV $(x, -y)$

$$\sin \theta =$$

$$\cos \theta =$$

$$\tan \theta =$$

Charge of Trigonometric Functions According to Quadrants



A_{ll} **S**_{tudents} **T**_{ake} **C**_{lasses}

Suppose that the point (x, y) is in the indicated quadrant. Decide whether the given ratio is positive or negative.

1. Quadrant II, $\frac{x}{y}$

2. Quadrant III, $\frac{y}{x}$

Finding Function Values of Coordinates

Given point (x, y) , use the Pythagorean Theorem $(x^2 + y^2 = r^2)$ to figure out the value of r .

Find the values of the six, simplified trigonometric functions of angle ϑ .

3. Point $(-6, 8)$

$$\sin\vartheta = \underline{\hspace{2cm}} \quad \csc\vartheta = \underline{\hspace{2cm}}$$

$$\cos\vartheta = \underline{\hspace{2cm}} \quad \sec\vartheta = \underline{\hspace{2cm}}$$

$$\tan\vartheta = \underline{\hspace{2cm}} \quad \cot\vartheta = \underline{\hspace{2cm}}$$

4. Point $(-9, -40)$

$$\sin\vartheta = \underline{\hspace{2cm}} \quad \csc\vartheta = \underline{\hspace{2cm}}$$

$$\cos\vartheta = \underline{\hspace{2cm}} \quad \sec\vartheta = \underline{\hspace{2cm}}$$

$$\tan\vartheta = \underline{\hspace{2cm}} \quad \cot\vartheta = \underline{\hspace{2cm}}$$

5. Point $(-\sqrt{3}, -1)$

$$\sin\vartheta = \underline{\hspace{2cm}} \quad \csc\vartheta = \underline{\hspace{2cm}}$$

$$\cos\vartheta = \underline{\hspace{2cm}} \quad \sec\vartheta = \underline{\hspace{2cm}}$$

$$\tan\vartheta = \underline{\hspace{2cm}} \quad \cot\vartheta = \underline{\hspace{2cm}}$$

Find the values of the six, simplified trigonometric functions of angle ϑ .

6. Point $(1, \sqrt{15})$

$$\sin\vartheta = \underline{\hspace{2cm}} \quad \csc\vartheta = \underline{\hspace{2cm}}$$

$$\cos\vartheta = \underline{\hspace{2cm}} \quad \sec\vartheta = \underline{\hspace{2cm}}$$

$$\tan\vartheta = \underline{\hspace{2cm}} \quad \cot\vartheta = \underline{\hspace{2cm}}$$

7. Point $(20, -48)$

$$\sin\vartheta = \underline{\hspace{2cm}} \quad \csc\vartheta = \underline{\hspace{2cm}}$$

$$\cos\vartheta = \underline{\hspace{2cm}} \quad \sec\vartheta = \underline{\hspace{2cm}}$$

$$\tan\vartheta = \underline{\hspace{2cm}} \quad \cot\vartheta = \underline{\hspace{2cm}}$$

8. Point $(3, \sqrt{7})$

$$\sin\vartheta = \underline{\hspace{2cm}} \quad \csc\vartheta = \underline{\hspace{2cm}}$$

$$\cos\vartheta = \underline{\hspace{2cm}} \quad \sec\vartheta = \underline{\hspace{2cm}}$$

$$\tan\vartheta = \underline{\hspace{2cm}} \quad \cot\vartheta = \underline{\hspace{2cm}}$$

Find the values of the six, simplified trigonometric functions of angle ϑ .

9. $\sin \vartheta = \frac{\sqrt{5}}{7}$, with ϑ in quadrant I.

$\sin \vartheta =$ _____ $\csc \vartheta =$ _____

$\cos \vartheta =$ _____ $\sec \vartheta =$ _____

$\tan \vartheta =$ _____ $\cot \vartheta =$ _____

10. $\tan \vartheta = -\frac{15}{8}$, with ϑ in quadrant II.

$\sin \vartheta =$ _____ $\csc \vartheta =$ _____

$\cos \vartheta =$ _____ $\sec \vartheta =$ _____

$\tan \vartheta =$ _____ $\cot \vartheta =$ _____

11. $\cos \vartheta = -\frac{4}{5}$, with ϑ in quadrant III.

$\sin \vartheta =$ _____ $\csc \vartheta =$ _____

$\cos \vartheta =$ _____ $\sec \vartheta =$ _____

$\tan \vartheta =$ _____ $\cot \vartheta =$ _____

12. $\sec \vartheta = \frac{2}{\sqrt{3}}$ with ϑ in quadrant IV.

$\sin \vartheta =$ _____ $\csc \vartheta =$ _____

$\cos \vartheta =$ _____ $\sec \vartheta =$ _____

$\tan \vartheta =$ _____ $\cot \vartheta =$ _____