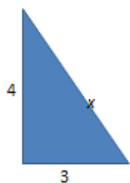


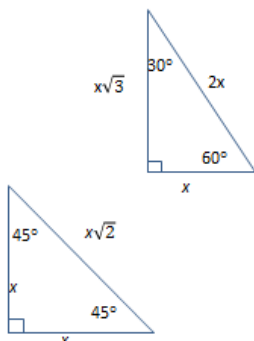
The Unit Circle

Pythagorean's Theorem



$$\begin{aligned} 4^2 + 3^2 &= x^2 \\ 16 + 9 &= x^2 \\ 25 &= x^2 \\ \sqrt{25} &= \sqrt{x^2} \\ 5 &= x \end{aligned}$$

Special Right Triangles



$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$

$$\csc \theta = \frac{1}{\sin \theta} = \frac{\text{hyp}}{\text{opp}}$$

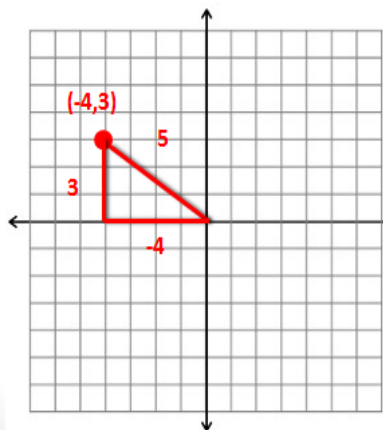
$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

$$\sec \theta = \frac{1}{\cos \theta} = \frac{\text{hyp}}{\text{adj}}$$

$$\tan \theta = \frac{\text{opp}}{\text{adj}} = \frac{\sin \theta}{\cos \theta}$$

$$\cot \theta = \frac{1}{\tan \theta} = \frac{\cos \theta}{\sin \theta} = \frac{\text{adj}}{\text{opp}}$$

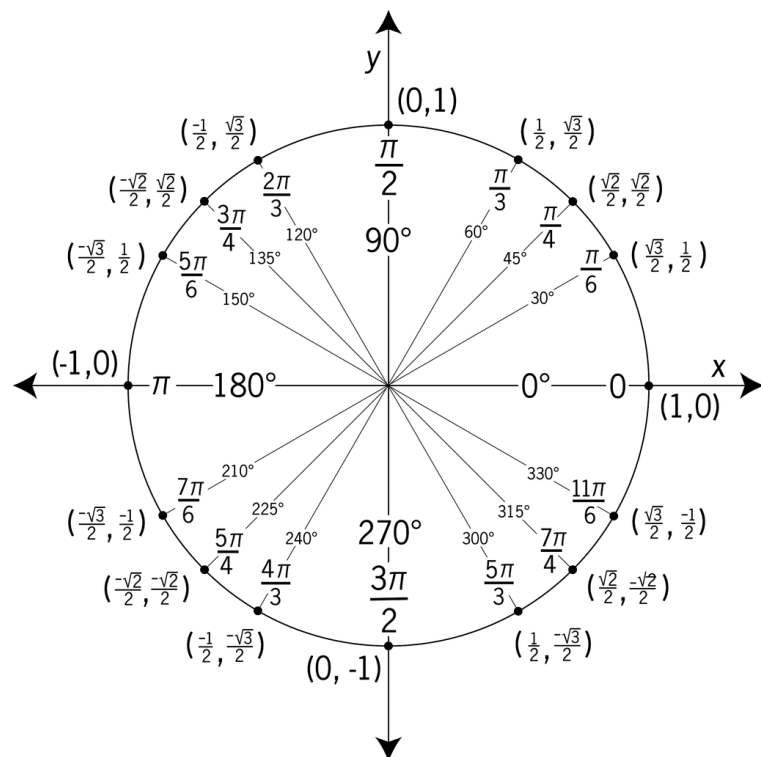
The terminal side of an angle contains the point $(-4, 3)$. Find the six trig functions of the angle.



$$\begin{aligned} -4^2 + 3^2 &= x^2 \\ 16 + 9 &= x^2 \\ 25 &= x^2 \\ 5 &= x \end{aligned}$$

$$\begin{aligned} \sin &= 3/5 & \csc &= 5/3 \\ \cos &= -4/5 & \sec &= 5/-4 \\ \tan &= 3/-4 & \cot &= -4/3 \end{aligned}$$

ALWAYS SIMPLIFY RATIOS!!!!



Vocab

Reference Angles: angles formed by terminal side of angles and the x-axis

Radians: Length of the arc formed by the initial and terminal side of an angle

Coterminal Angles: Angles that share a terminal side.

Standard Position: Angle that shares a terminal side between 0 and 360 or 0 and 2π .

Converting degree \rightarrow radian

$$* \frac{\pi}{180}$$

converting radian \rightarrow degree

$$* \frac{180}{\pi}$$