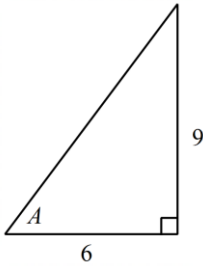Date:

Objective:

Review: Find the exact values of all 6 trigonometric functions. Write answer in simplest form.

sin A =   cos A =

tan A =   sec A =

csc A =   cot A =

Find the degree measure of θ in the above triangle.

Vocabulary:

Standard position:

Initial side:

Terminal side:

Reference angle:

What if I put the above triangle in standard position in the first quadrant?

What is the x-coordinate?

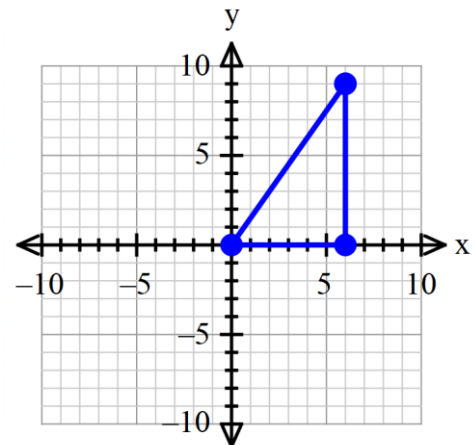What is the y-coordinate?

What is the hypotenuse?

sin A =   cos A =   tan A =
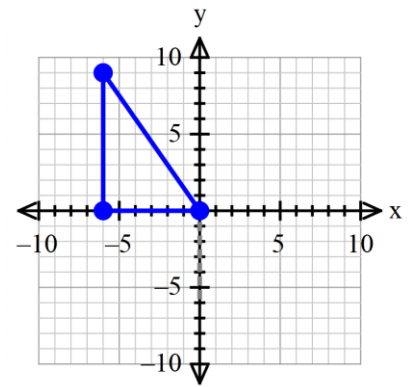
sec A =   csc A =   cot A =

What do you notice about the signs of the x- and y-corrodinates and the 6 trig functions?

Now do the same thing with the triangle in the second quadrant.

What is the x-coordinate?

What is the y-coordinate?

What is the hypotenuse?

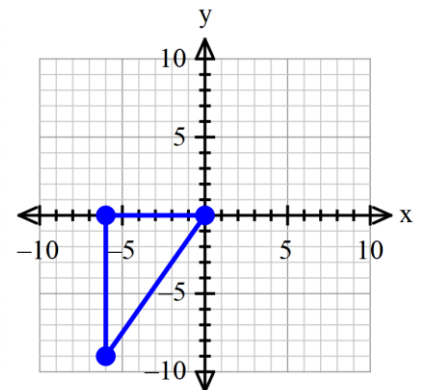sin A =   cos A =   tan A =   sec A =   csc A =   cot A =

What do you notice about the signs of the x- and y-corrodinates and the 6 trig functions?

How about the third quadrant?

What is the x-coordinate?

What is the y-coordinate?

What is the hypotenuse?

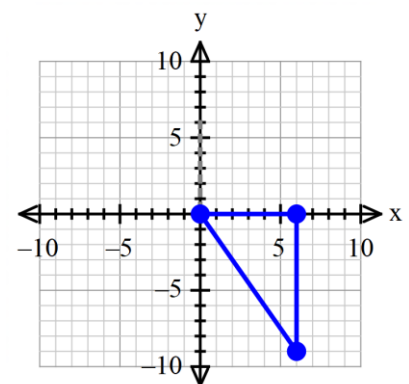sin A =   cos A =   tan A =   sec A =   csc A =   cot A =

What do you notice about the signs of the x- and y-corrodinates and the 6 trig functions?

How about the fourth quadrant?

What is the x-coordinate?

What is the y-coordinate?

What is the hypotenuse?

sin A =   cos A =   tan A =   sec A =   csc A =   cot A =

What do you notice about the signs of the x- and y-corrodinates and the 6 trig functions?

What side does the x-coordinate equal on a right triangle with θ at the origin?

What side does the y-coordinate equal on a right triangle with θ at the origin?

Write the 6 trig functions using x, y, h instead of opposite, adjacent, hypotenuse.

sin A =   cos A =   tan A =   sec A =   csc A =   cot A =

The *signs* of the trigonometric functions depend on the quadrant in which the angle lies and the corresponding signs of x and y (remember r is always positive).
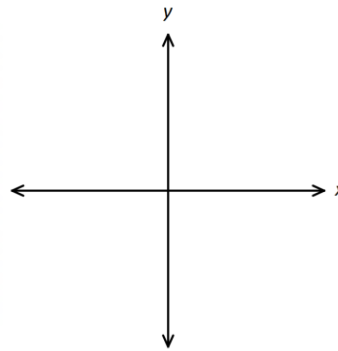
A good mnemonic to remember which functions are positive in each quadrant is "**A**ll **S**tudents **T**ake **C**alculus".
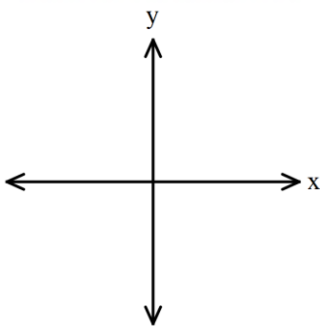
Quadrant I:

Quadrant II:

Quadrant III:

Quadrant IV:

Examples:

Find the exact values of $\sin\theta$, $\cos\theta$, $\tan\theta$, $\csc\theta$, $\sec\theta$, and $\cot\theta$ where θ is an angle in standard position whose terminal side contains the given point. Write answers in simplest form.

1. $(-1, 3)$

$\sin\theta =$ _____ $\csc\theta =$ _____
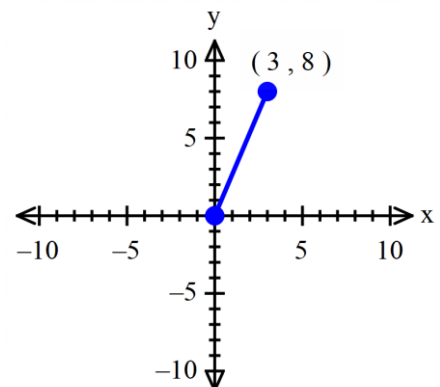
$\cos\theta =$ _____ $\sec\theta =$ _____

$\tan\theta =$ _____ $\cot\theta =$ _____

Find the degree of the angle (round to the nearest tenth of a degree), in standard position, whose terminal side contains the given point.

2. $(3, 8)$

$\theta =$ _____

REMEMBER: There are 2 quadrants where each trig function is positive and 2 quadrants where each trig function is negative.
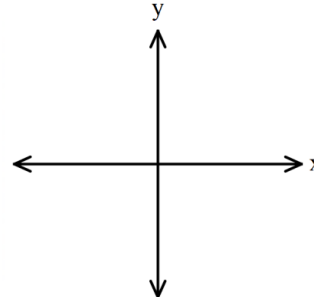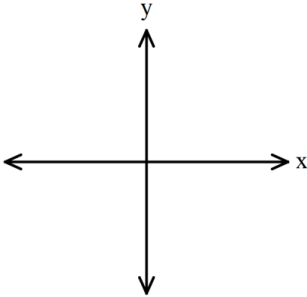
Draw the two triangles for the trig functions and find the coordinates that go with it. There will be 2 answers. Leave answers in simplest radical form. (Remember All Students Take Calculus). Then find the angles from $[0, 360°)$ in standard position (round to the nearest tenth of a degree).

3. $\sin \theta = -\dfrac{2}{7}$

Coordinates: _____ and _____   Angles: _____ and _____

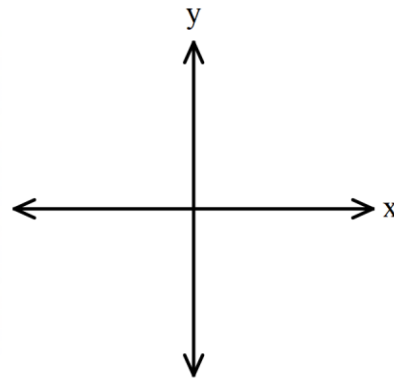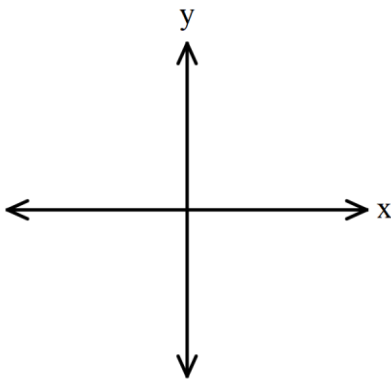4. $\cos \theta = \dfrac{24}{25}$

Coordinates: _____ and _____   Angles: _____ and _____

5. $\tan \theta = -\dfrac{2}{5}$

Coordinates: _____ and _____   Angles: _____ and _____