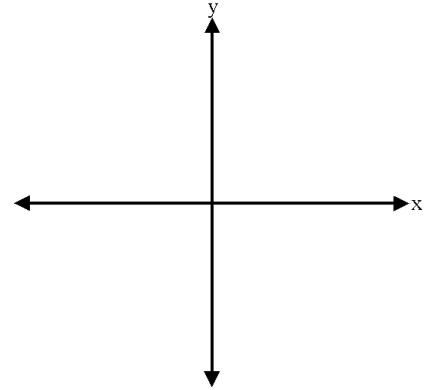
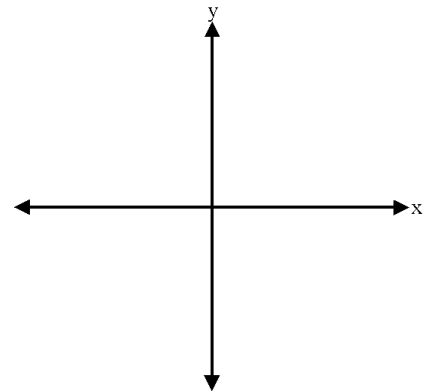


1. If  $\tan \theta = \frac{2}{3}$  and  $\sec \theta < 0$ , find  $\sin \theta$  and  $\cos \theta$ .

*(Hints: Use the given information to determine a quadrant. Draw the triangle and use SOH-CAH-TOA to label the sides. Then use the Pythagorean theorem to find the missing side length.)*



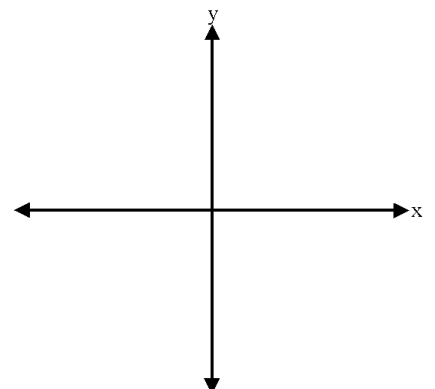
2. If  $\sec \theta = -5$  and  $\tan \theta < 0$ , find  $\cot \theta$  and  $\sin \theta$ .



Point P is on the terminal side of angle  $\theta$ . Evaluate the six trigonometric functions for  $\theta$ .

3.  $P(-2, -6)$

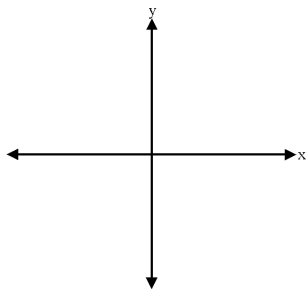
*(Hints: Plot point P on the axes provided. Draw in the terminal side from the origin to P. Construct a right triangle by drawing a perpendicular from P to the x-axis. Label the lengths of the sides of the triangle. You will need to use the Pythagorean theorem to find the missing side.)*



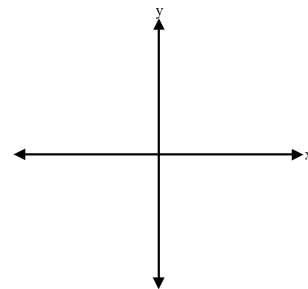
4. For each of the following, draw a diagram and show the approximate location for **ALL** angles that meet the criterion. Give exact angle measures or radians.

*(Hints: Ask yourself the following questions: Is the value of the function positive or negative or zero? Which quadrant(s) does that function take on a (+, -, 0) value? Use the axes provided to construct those triangles. Then ask yourself what angle has that value for the given function? Write your answer in degrees for  $\theta$  and radians for  $x$ . Because you are listing ALL angles, be sure to add on  $+360N$  or  $+2\pi N$  )*

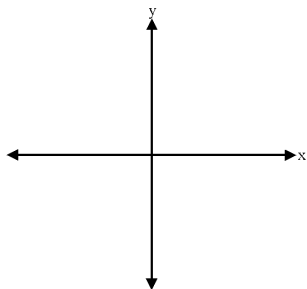
a.  $\sin x = -\frac{\sqrt{3}}{2}$



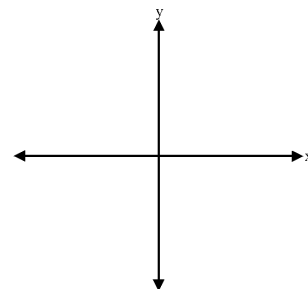
b.  $\sec \theta = -2$



c.  $\tan x = -1$



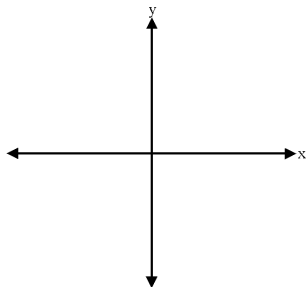
d.  $\csc \theta = \sqrt{2}$



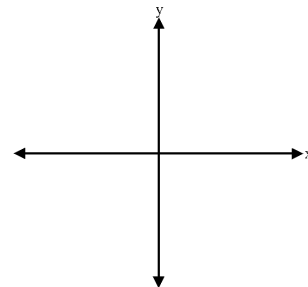
5. Find exact values for each of the following.

*(Hints: Use the axes provided to locate the given angle or degree measure. Draw the triangle, labeling the reference angle and all side lengths. Check to see if any values need to be negative. Use the diagram to find the given function (i.e. sine, cosine, etc...) at that location. )*

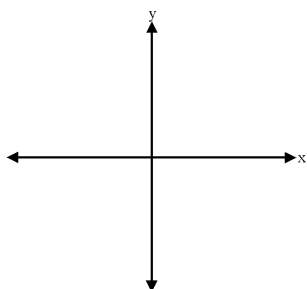
a.  $\sec \frac{\pi}{2}$



b.  $\cot 330^\circ$



c.  $\csc \frac{7\pi}{6}$



d.  $\sin 120^\circ$

