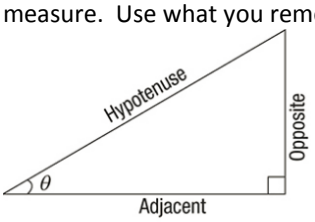
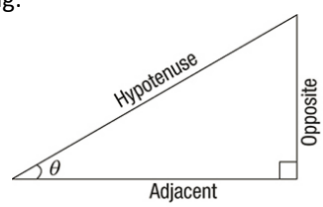
NCM3: Coordinates of a Unit Circle Name: _____ #___

Sine and Cosine are trig functions. Since the ratios depend on the angle measure, sine and cosine are a function of the angle measure. Use what you remember from Math 2 to fill in the following:

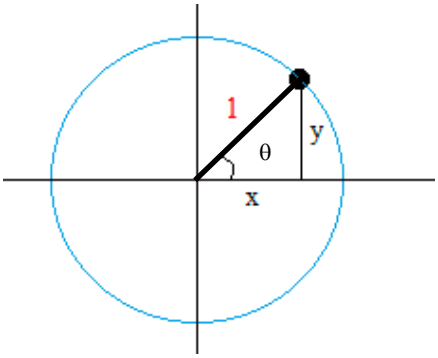


$\sin(\theta) =$ _____



$\cos(\theta) =$ _____

A unit circle is defined as a circle with a radius of 1, centered at the origin.



Using your answers from above find the sine and cosine of theta (θ) in terms of x and y. Then simplify.

a) $\sin(\theta) =$ ____ $=$

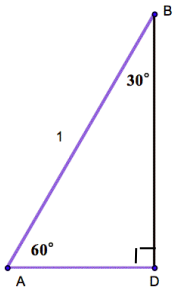
b) $\cos(\theta) =$ ____ $=$

Write the general form of a coordinate pair in terms of Sine and Cosine:

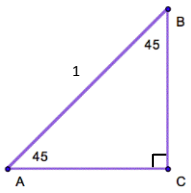
(_____, _____)

Recall your special right triangle work from yesterday. Find the length of each leg in the following right triangles. Leave your answers in exact form (no decimals!!!).

1)



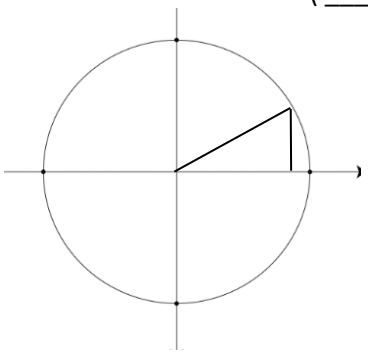
2)



For each given theta measure, sketch the angle on your unit circle. Then use your special right triangles to find the x and y coordinates of the point on the unit circle. Leave your answers in exact, simplified form. No decimals!!!

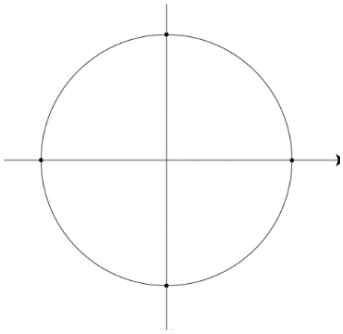
3) $\frac{\pi}{6}$ *radians*

(_____, _____)

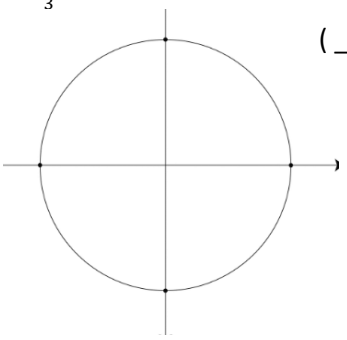


4) 45 degrees

(_____, _____)

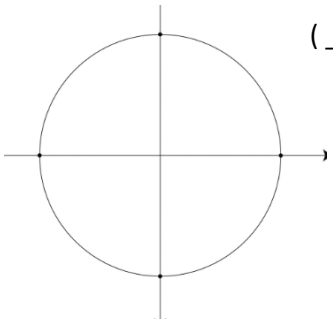


5) $\frac{\pi}{3}$ $radians$



(_____, _____)

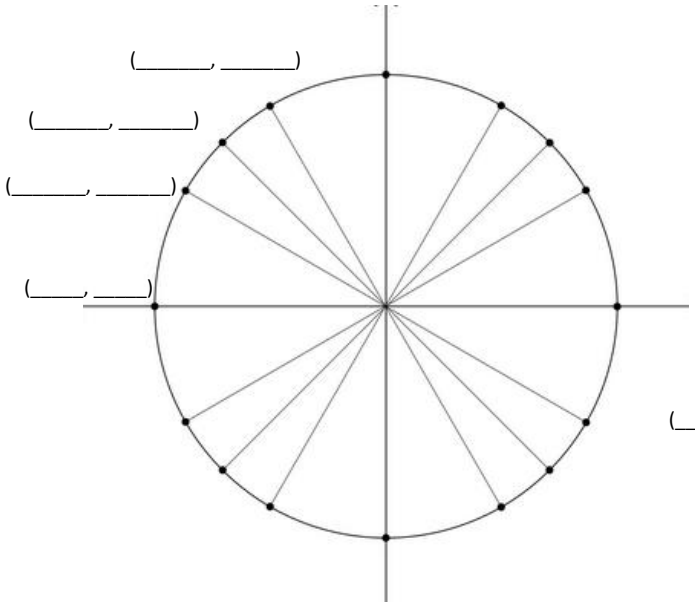
6) 90 degrees



(_____, _____)

7) The points on the unit circle located in **quadrant two** are the points from **quadrant one** reflected over the _____- axis. To find these coordinates I would change the sign of the _____ coordinate, and leave the ____ coordinate the same.

8) The points on the unit circle located in **quadrant three** are the points from **quadrant two** reflected over the _____- axis. To find these coordinates I would change the sign of the _____ coordinate, and leave the ____ coordinate the same.

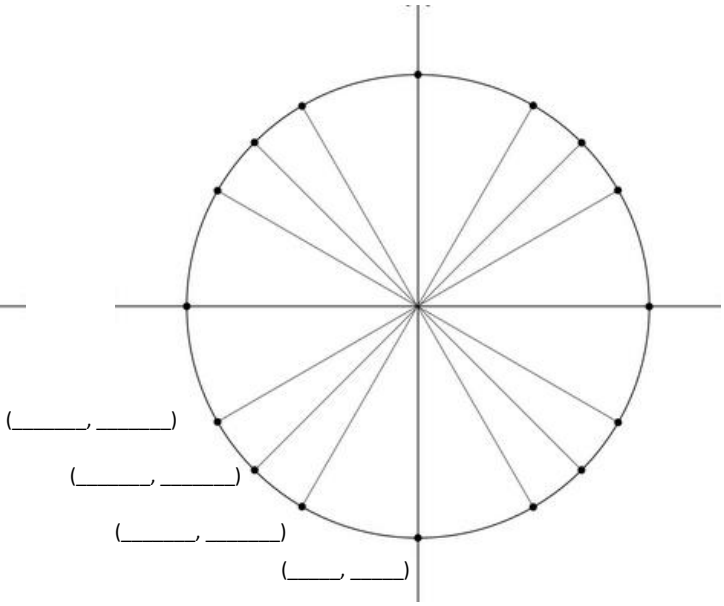


(_____, _____)

(_____, _____)

(_____, _____)

(____, ____)



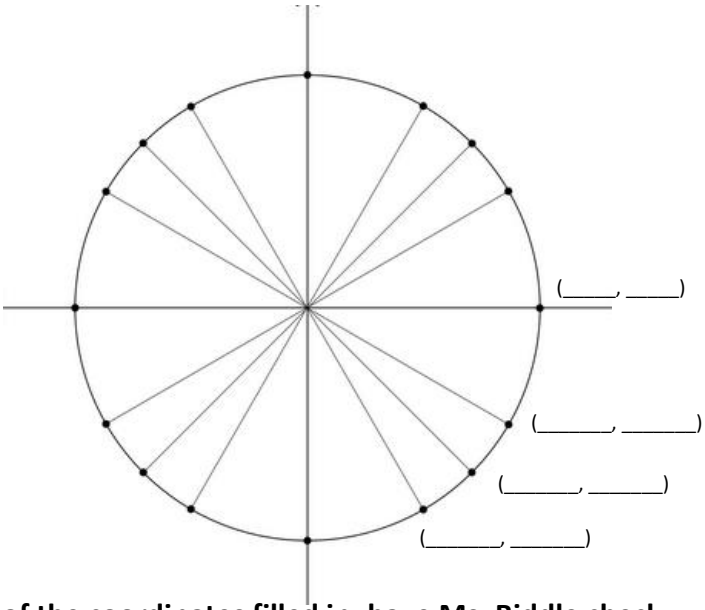
(_____, _____)

(_____, _____)

(_____, _____)

(____, ____)

9) The points on the unit circle located in **quadrant four** are the points from **quadrant three** reflected over the _____- axis. To find these coordinates I would change the sign of the _____ coordinate, and leave the ____ coordinate the same.



(____, ____)

(_____, _____)

(_____, _____)

(_____, _____)

10) Once you and all of your group members have all of the coordinates filled in, have Ms. Biddle check your answers then add the points to your rotating unit circle.