Name: _____ Date: _____

PCH: Unit Circle Ms. Loughran

Do Now:

1. The half life of radium-226 is 1590 years. If the initial mass is 150 mg, Find:
   (a) the mass that will remain after 1000 years ,
   (b) after how many years will only 50 mg remain?

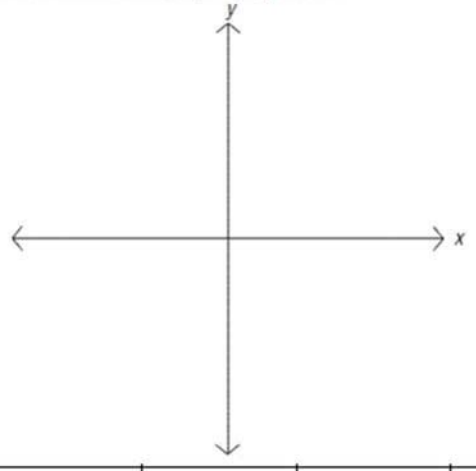
The unit circle is a circle with center at the origin and radius 1.
Therefore its equation is: _____
The first two trigonometric functions we will study are sine and cosine.

In the figure at the right, angle θ is in standard position. Point P represents the intersection of the unit circle and the terminal side of angle θ in standard position. We define the functions as follows:

The sine of θ is the -coordinate of P.
The cosine of θ is the -coordinate of P.
Also we can express tangent in terms of sine and cosine.

$$\tan\theta = \frac{\quad}{\quad} = \frac{}{}, \quad \neq 0$$

Notice the signs of these functions depend on the quadrant in which angle θ lies.
Draw the unit circle on the axes provided. Label the four points where the circle intersects the axes. Use those points and what we have just learned about sine, cosine and tangent to fill in the accompanying table.



θ in radians					
sin θ					
cos θ					
tan θ					

THE UNIT CIRCLE