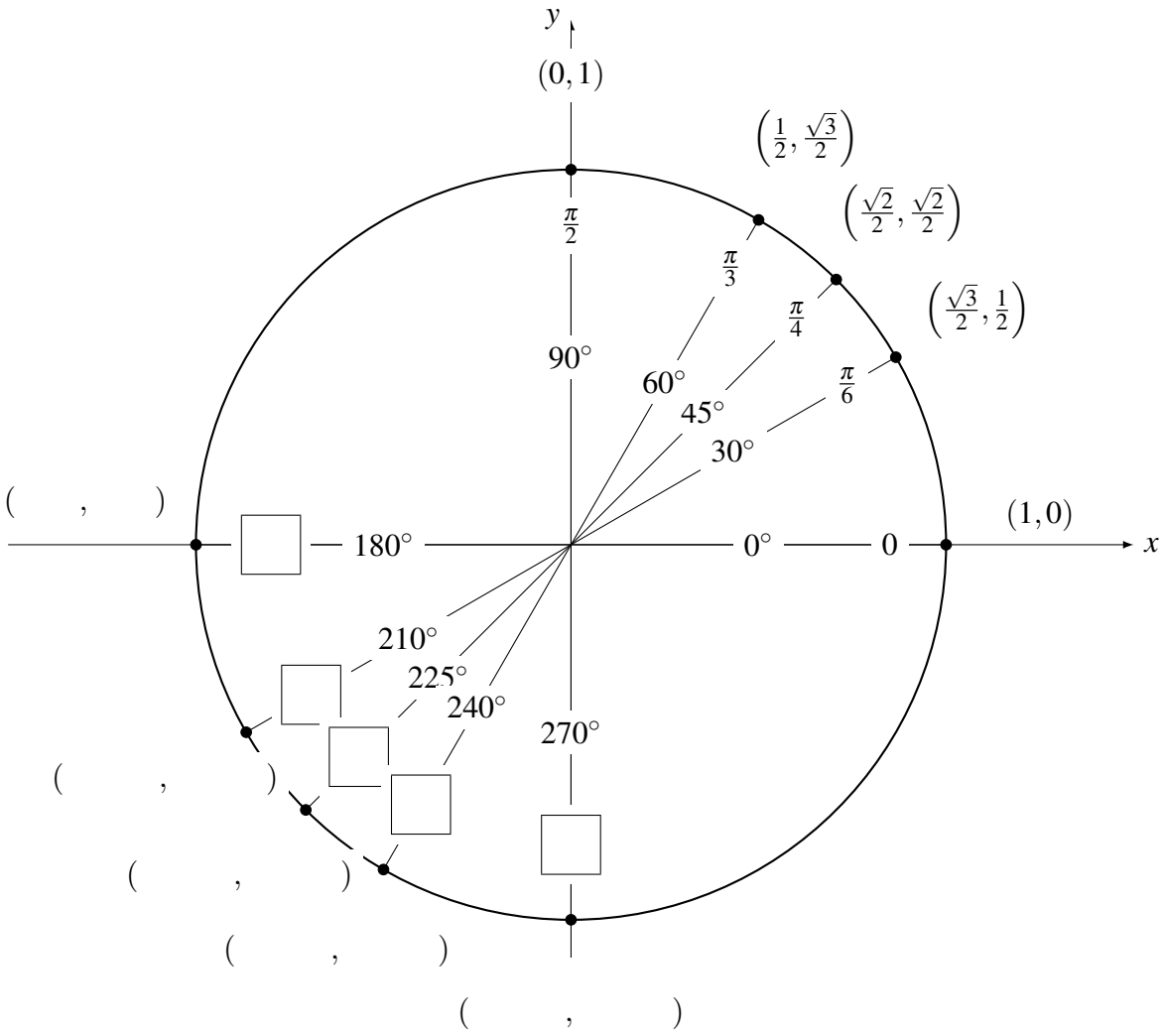
Name: _____ _____ **/ 25**

There are 25 points possible on this quiz. No aids (book, calculator, etc.) are permitted. **Show all work for full credit.**

1. (6 points) In the unit circle below, the details for Quadrant 1 have been provided. Fill in the remaining details for Quadrant 3. (You must fill in **FIVE** boxes indicating angles in radians and **FIVE** ordered pairs of points.



2. (4 points) Evaluate the trigonometric functions. Assume all angles are in radians. Simply your answers.

$\sin(3\pi/2) =$ $\tan(7\pi/6) =$

3. (5 points) For five seconds, the position of a moose running down Yukon Drive is modeled by $d(t) = t^2$, where t is time in seconds and d is distance in meters. Find the average velocity of the moose between $t = 3$ and $t = 5$. Include units with your answer.

4. (10 points) Let $g(x) = \frac{12}{x+1}$. Observe that $P(1,6)$ is a point on the graph of $g(x)$.

   (a) Find the slope of the secant line passing through P and the point $Q(3, g(3))$.

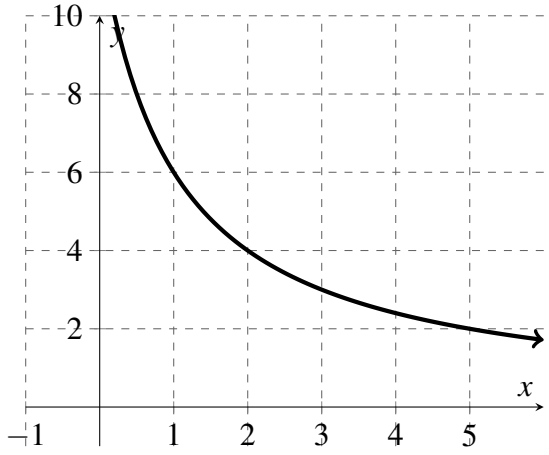
   (b) The table below lists the slope of the secant line passing through the point P and the point $Q(x, f(x))$ for several values of x.

x	0.9	0.99	0.999	1	1.001	1.01	1.1
g(x)	6.3157	6.0302	6.0030	6	5.9970	5.9701	5.7143
m_{sec}	-3.1579	-3.0151	-3.0015		-2.9985	-2.9851	-2.8571

   Use the information in the table to estimate the slope of the tangent line to $g(x)$ at the point $P(1,6)$.

   (c) Use the slope from part (b) above to write an equation of the tangent line to $g(x)$ at point $P(1,6)$.

   (d)



Left is a sketch of the graph of

$$f(x) = \frac{12}{x+1}.$$

Sketch and label the **tangent** line to the graph at the point $P(1,6)$.
Sketch and label the **secant** line between $P(1,6)$ and $Q(3, g(3))$.