Good Luck to_____

Pd_____

Final Group Quiz Pre Cal

1) A restaurant on the the top of a building is shaped like a circle with a radius of 80 feet. The restaurant rotates 60 degrees every 15 minutes. Two diners notice a bird that is sitting on a ledge outside of a window. One diner argues that the bird will travel 160 feet in an hour since 160 is the diameter of the restaurant, while the other diner argues that the bird will travel a longer distance.

   If the bird stays on the ledge outside of the window, approximately how far will the bird travel in an hour?

2) List all six Trigonometric functions and rewrite the functions in terms of sine and cosine:

3) Find the average rate of change between $f(a)\ and\ f(a+h)$ for $f(x)=x^2-2x+3$.

4) Graph the functions $y = 5^x$ and $y = log_5(x)$ on the same graph. ***Use provided graph paper.*** Make sure to label axis and use highlighter to mark asymptotes.

   a) What is the equation of the line for the asymptote of the log function?

   b) What is the equation of the line for the asymptote of the exponential function?

   c) *These two functions are inverses of each other. Describe how you know this:*

5) Prove the following Trig Identity. (change the left hand side into the right)

$$\frac{sin(x)}{sec^2(x)-1} = \frac{1-sin^2(x)}{sin(x)}$$

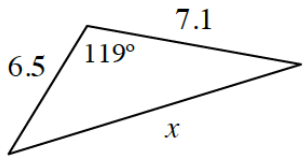
6) Show that the following Trigonometric Identity is true. (Hint: use an addition identity)

$$cos\left(\frac{\pi}{2} + \Theta\right) = -sin(\Theta)$$

7) Solve for the following Trigonometric Equation for all ***exact values*** $0 \le \Theta \le 2\pi$.
(Hint: Think "u" substitution)

$$-\sqrt{3} = 2sin(3\Theta + \frac{7\pi}{6})$$

8) Solve for x in each triangle below. . ***Make sure your calculator is in degree mode.***



9)

Let $f(x) = \frac{x^2+3x-10}{x-2}$. Complete the table of values below to predict the value of $\lim_{x \to 2} \frac{x^2+3x-10}{x-2}$.

x	1.9	1.99	1.999	2.001	2.01	2.1
$f(x)$						