Name: _____

BLC-190 Take-Home Mid-Term Quiz

1. Suppose that $\boldsymbol{f(t) = t^2}$ and $\boldsymbol{g(t) = \frac{1}{t+5}}$. Evaluate and simplify your answer as much as possible.

$$g(f(x+5))(x^2+10x+30) =$$

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2. The year 2356.
   The liquid 3000-LUX found on the planet Tycho-533C.
   This liquid freezes at 25ºC, which is 100ºL (degrees Lucis).
   This same liquid boils at 50ºC or 200ºL.

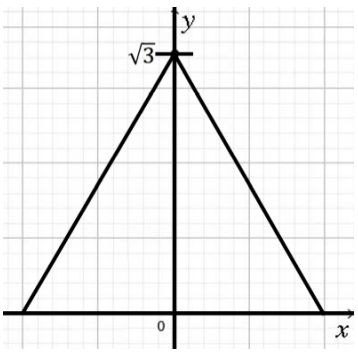
   a. Write a function in y = mx + b form that will convert Celcius to Lucis [ºL(ºC)] and write another formula to convert Lucis to Celcius [ºC(ºL)].

   b. At what temperature are both temperatures numerically the same?

3. Construct an equilateral triangle in which the tippy top point is $\sqrt{3}$ and the base is on the x-axis. See diagram.

   What are the coordinates of the two corners on the x-axis?

   Hint: $\sin 60^\circ = \frac{\sqrt{3}}{2}$.



4. Solve and simplify.

$$\log_5 105 - \log_5 3 - \log_5 7 = 1$$

5. $A(t) = Pe^{rt}$. Radio Carbon Dating: Your sample has a C_{14} content of 0.88606. The rate of decay of C14 is -0.00012097 per year. P is 1.

6. Simplify $\frac{3}{\sqrt{3}}$.

7. Factor out a 3, a π and a ☆ from each thing. I did a couple to get you started.

	18	4.6π	☮	5x
7a) Factor out a 3:	3(6)			
7b) Factor out a π:				
7b) Factor out a ☆:	☆(18/☆)			