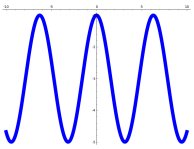
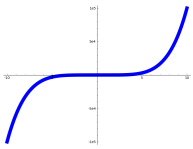
MATH 1 WEEKLY ASSIGNMENT #2
DUE SEPTEMBER 29

Problem #1

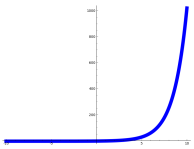
I) For each of the following graphs, identify the type of function that would describe it. If the graph is a polynomial, determine whether its degree is even or odd.



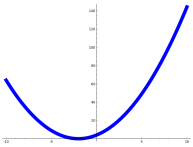
(A)



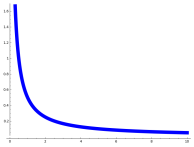
(B)



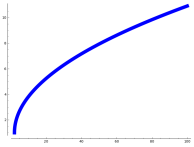
(C)



(D)



(E)



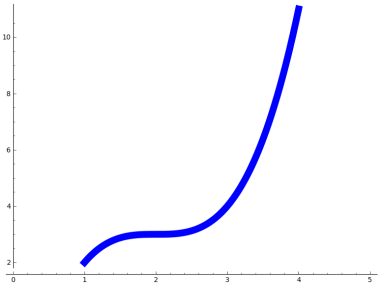
(F)

II) What kind of function would you use to model heartbeats? Write a sentence explaining why.

III) What kind of function would you use to model the amount of time you spend studying each week in a quarter. Write a sentence explaining why.

Problem #2

The graph of a function $f(x)$ is shown below:



I) Describe the transformations that are needed to draw the graph of $-f(x-5)+2$. What order do the transformations need to be performed in?

II) Sketch the graph of $-f(x-5)+2$.

III) Write a paragraph explaining why order matters for graph transformation operations.

Date: September 23, 2015.

Problem #3

I) Write $\sqrt[3]{x^2+4x+4}$ as a composition of two functions.

II) Write $\sqrt[3]{x^2+4x+4}$ as a composition of three functions.

III) Write $\sqrt{x}+34x^2$ as a composition of two functions.

IV) Write $-f(x-5)+2$ as a composition of three functions.

Problem #4

On three consecutive days your company's stock value closing prices are given in the following table:

Day	Price
1	\$8
2	\$13
3	\$16

I) Plot these data points on a graph.

II) Construct and graph the interpolating polynomial for these data points.

III) Write a paragraph discussing some of the issues with this model.

IV) Find a linear function that almost fits these data points. Is this model more realistic than the interpolated polynomial? Why or why not?

Problem #5

Compute the average rates of change for the following functions over the indicated intervals:

I) $f(x)=x^3-4x^2+13$ on $[-1,5]$

II) $g(x)=\dfrac{x^2-1}{x+4}$ on $[-3,12]$

III) $h(x)=\sqrt{x}+x^2+\dfrac{1}{x}$ on $[1,4]$

Problem #6

I) Consider the function $f(x)=4x+5$. What is the average rate of change of f on $[-1,1]$? $[-2,17]$? $[4,10]$?

II) Based on your answer to part I), what is the average rate of change of f on any interval?

III) Write a paragraph explaining why the average rate of change is always constant for a linear function. Hint: think about the geometric interpretation.