Homework #3   Name: _____

Math 131 Section: _____   Row: _____

This assignment is due by 11 am on Febuary 9, 2007 You can turn it in to me in class or drop it by the office, **Blocker 640D**. Be sure that you follow the homework rules, they can be found on your syllabus. Please work the problems in the order that they are listed.

Give all answers to at least 4 decimal digits. Be careful to not round intermediate steps since this can cause problems with your final answer.

1. You have the option of buying a 3 year service contract on a dishwasher. The price of the contract is $250. You anticipate that the cost of repairs if you do not buy the service contract will be $40 at the end of the first year, $90 at the end of the second year, and $150 at the end of the third year. Assume that the interest rate is 7% per year compounded continuously. Should you buy the service contract? Justify your answer like we did in class.
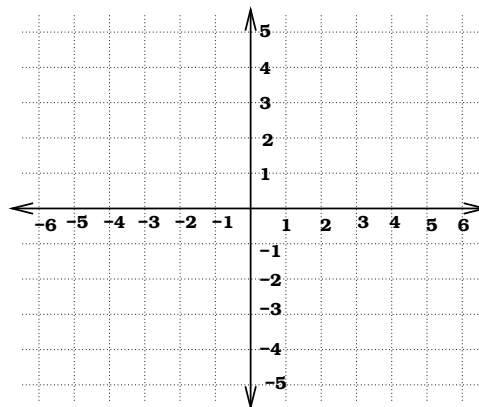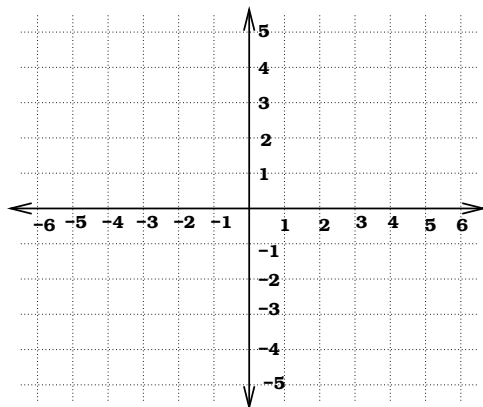

Use these graphs for problems 2 and 3
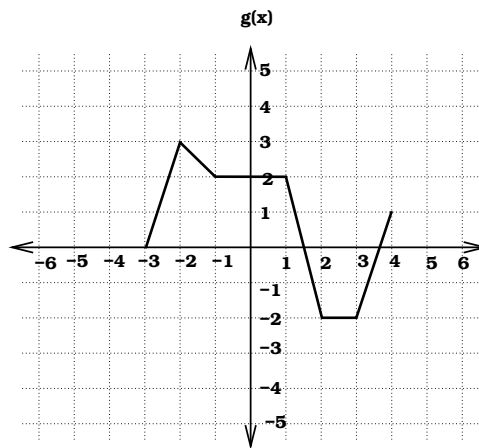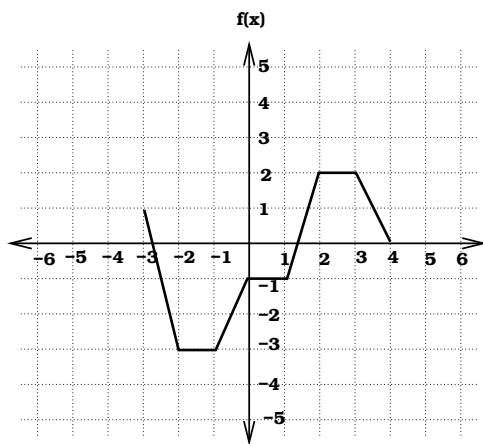
2. On the graphs, <u>ONLY DRAW THE ANSWER</u> for these transformations.
   (a) $2f(x-2)+1$ (b) $-g(x)+3$

3. Compute the following.

   (a) $f(g(2)) =$

   (b) $g(f(0)) =$

   (c) $g(g(2)) =$

4. A plate has a surface area of 80 cm^2 and has two colonies of mold growing on it. Colony A starts with an area of 2 cm^2 and has a continuous daily growth rate of 3.7%. Colony B starts with 8 cm^2 and has a continuous growth rate of 2.57%.

   (a) How long until the plate is completely covered by mold?

   (b) What percent of the plate is covered by colony B?

5. The period of a pendulum is proportional to the square root of the length of the pendulum. A pendulum that is 3 ft long has a period of 1.924 seconds.

   (a) Find the constant of proportionality.

   (b) How long is a pendulum that has a period of 1 second?

6. A farmer has noticed that the number of grasshoppers, G, in his field counted at the end of the week was inversely proportional to the product of the number kids fishing, F, and the number of sunny days, S, during that week. During a week that there were 5 sunny days and 8 kids fishing, the farmer counted 300 grasshoppers.

   (a) Find the constant of proportionality.

   (b) How many grasshoppers would the farmer find if there were 6 sunny days and 40 kids fishing?