HOMEWORK ASSIGNMENT 2: Due, in class Tuesday Sept. 26.
INSTRUCTIONS: Each problem below requires that you "explain" or "discuss" your answer. Your audience for this exercise is a student like you who is not currently taking any math class (but has the same background as you do). Be clear and concise.

Remember to write (or type) on one side of each piece of paper, staple in the upper left corning. Write your name clearly in the upper left corner.

1. How many ways are there to choose a president and a vice president from a class of N people. Explain how you came up with your answer.

2. How many ways are there to put a class of 10 people in a line? (Hint: That is, you must pick a first person, then from those left you must pick a second person, then from those left you must pick a third person, and so on). Explain how you came up with your answer.

3. Suppose you have 5 types of fruit (apples, pears, cherrys, cantalope and blackberries). How many different fruit bowls can you make (Hint: For each type of fruit you can either choose to put it in the bowl or not, but to have a fruit bowl, you must use at least one type of fruit.) Explain how you came up with your answer.

4. The populations of New York from 1800 to 2000 given below in millions of people (U.S. Census data).

Year	$Pop. of New York$
1800	0.589
1820	1.373
1840	2.429
1860	3.881
1880	5.083
1900	7.269
1920	10.385
1940	13.479
1960	16.782
1980	17.558
2000	18.976

Make a "Logarithmic scale" graph of the population. That is, compute the log base 2 of the population for each year, then plot these numbers with year on the horizontal axis and log of the population on the vertical axis. (If you do not have a calculator that can compute log base 2, google "Log base 2 calculator". Be sure to list the page of the calculator.

Has the population of New York been growing exponentially for the past 200 years? Discuss in a sentence or two how the rate of increase of the population hsa changed over the years (remember, the population is going up! It is the rate of increase that you are worried about).