Statistics 1, Sections 4 and 6 (Norris)

Additional HW #2 Problems (not in the textbook)

1. Consider the following dataset relating the age of a car and its resale value.

X=age of car in years	2	10	7	5	15
Y=resale value in thousands of dollars	15	5	10	15	2

   a) Construct a scatterplot of the data.
   b) Do you expect the linear correlation coefficient, r, to be negative, positive or near zero? Explain why.
   c) Calculate the linear correlation coefficient, r, and interpret it.
   d) Calculate the best fit line.
   e) Draw the regression line on the scatterplot from part (a).
   f) What does the slope tell us about the relationship between the variables age of car and resale value?
   g) Predict the resale value of a car that is 8 years old.

2. Does multiplying each x value in a bivariate dataset change the correlation coefficient? Justify your answer. Does it change the equation of the best fit line? Again, justify your answer.

3. Will the linear correlation coefficient likely be positive, negative or zero for the following bivariate datasets.

a) x = number of units a college student carries, y = average amount of sleep student gets each night

b) x= the daily high temperature, y= number of ice creams sold by the ice cream truck

c) x= last digit of a person's social security number, y= person's score on mathematical aptitude test

d) x= number of kilometers a person runs per week, y= time on a 5 kilometer race