**Book Homework Chapter 13 Session 9**

The following work is expressing my take on the following examples for each specific section regarding the topic covered. This is my understanding of what I have understood from reading the chapter and previous knowledge by writing a paragraph showing how to perform and resolve each example. Problems: 13.5, 13.17, 13.25, 13.43, 13.57

13.5 This problem is a scenario they gave us sample of x and y for part a. they want us to construct a scatter plot. The easy way to do a scatter plot would be with a software program, or with pencil we have to create x and y axis and plot the data. For part b. they want us to interpret the meaning of the slope, b1, in order to do this we have to understand the values involve in the line of the graph and the relationship for depending on the scenario it could be a positive linear relationship like this scenario or in other circumstances it could be a negative linear relationship there are 6 types and all involve the x and y axis. For part c. they want us to predict the variables of the scenario to a specific outcome that would be equal to a number. To do this we have to use the function Y=b0+b1(x); x is the independent variable that can be any number so if we are trying to find x number of this we would substitute x with that number to get the answer knowing the scenario gave us b0 and b1.

13.17 This problem they gave us SSR and SST equal a number. For part a. they want us to determine the coefficient of determination, R^2, and interpret its meaning. We need to understand the function of R^2= Regression sum of the square (SSR) / Total sum of squares (SST), they gave us those two number so we just compute. For part b. they want us to determine the standard error of the estimate to do this we have to use the function Syx = sqrootn SSE/ (n-2) and we would get standard error of estimate SSE we can get it from SST= SSR+SSE, n we get it from the sample size on page 481 scenario. Part c. they are asking us how useful do we think regression model is for predicting scenario, we can say if very useful because it give us the relationship result of the variables we can see in the scatter plot.

13.25 This problem they want us to use the data in problem 13.5. They want us to performed a residual analysis for these data and evaluate whether the assumption of regression have been seriously violated. To solve this problem we have to understand that the residual is equal tot the difference between value and the predicted value, we plug that data in the scatter plot and we can determine independence( to see if they are apart) and normality (we evaluate by using its frequency of the differences). Then we could determine if they been seriously violated.

13.43 This problem they want us to use the data in problem 13.5. They also gave us b1 and sb1 equal a number. For part a. they gave us a level of significance and they are asking if there is evidence of a linear relationship between x and y variable we would do a hypothesis test where ho=0 and ha: does not equal 0 we find the tstat= b1-B1/Sb1 and then we find the degree of freedom and we look for it in the table E.3 in our book and we can determine depending if we reject the null another way if we do it by software we can that p-value is close to 0 so we can take a decision from there. For part b they want us to construct a confidence interval estimate of population slope B1, we do this by knowing tstat and our critical value b1+-critical value we found in part a. times Sb1 and we get our upper and lower values.

13.57 For this problem they want us to use the data on problem 13.5. They also gave us Syx and hi and x equal a number. For part a. they want us to construct a confidence interval estimate of the mean form problem 13.5. For thing we have to do is Yi=b0+b1(x); then we use Y+- (critical value) (Syx) sqroot hi and that is how we get our upper and lower number in our interval. For part b. they want us to construct a prediction interval of the scenario on problem13.5. First this is using the function (predicted value of Y) +-(critical value) (Syx) sqroot (1+hi) will give us an upper and lower number for our interval. For part c. they want us to explain the result from part a. and b. and we can conclude that there would be a difference between each other because one is the predicted value.