Stat 2216 Spring 2012
Statistical Methods R. Claycombe

Second Exam

Write all answers in your blue book and show all work there. Return your exam and printout(s) in your blue book.

20 pts
Suppose we have these variables, A,B and C, with the data below and C is a function of A and B.

1)

A	B	C
1	5	11
2	6	15
3	8	18
4	9	26

a) Find by hand (show work) the coefficients in the regression model (a, b_1, b_2).
b) Find by hand (show work) R^2 and interpret it.
c) Find by hand (show work) the F statistic and interpret it.

18 pts.
2) **Computer problem**.

a) Use SPSS or Excel to repeat the fit that you did by hand in problem 1. Print it along with results for part c below.

b) Use the computer results to identify any significant varibles (α=.05). Explain.

c) Run the regression again without variable A and do your best to explain what happened variable B's slope and say which model you like better and why.

18 pts.
3) **Computer problem**. Open the Bikes file in the Chap 16 folder for the 11th edition. And create dummy variables for types of bikes.

a) Use SPSS to estimate a model where the price is a function of weight and types of bikes **and**

b) Be sure to ask for a residual plot and to search for outliers and influential observations and collinearity.

c) Does the plot suggest any econometric problems? Explain.

d) Is there any evidence of outliers or influential observations or collinearity.

8 pts

4) If you have $R^2_{Adjusted} = .1$, while $R^2 = .6$, what does this mean?

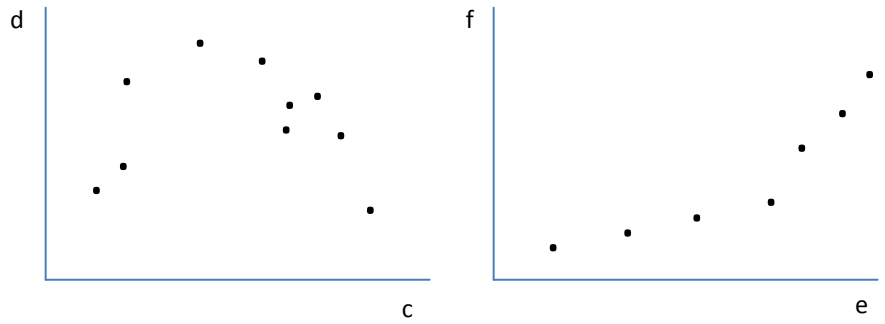
12 pts.

5) Suppose you have data that plots as in the following charts.

a) Suggest a model that would fit each chart best.

b) For first one, suggest the sign of the coefficients in your equations that would make the shape.

c) For the second, suggest values for the coefficients that might work well.



12 pts

6) Suppose you have independent samples from two cities where the mean in city 1 is 12 and the variance is 8 for a sample of 30 and in city 2 the mean is 15 with a variance of 10 for a sample of 40. Assuming that the population variances are equal, construct a 99 percent confidence interval for the difference in the means.

12 pts.

7) **Computer problem.** Open the Matched file in the chap 10 folder the 11th edition folder.

a) Use this data to do a matched pair test that the means are the same (α=.01) for the two methods.

b) Find the standard error for the difference of the means.

I have neither given nor received unfair aid on this test nor am I aware of anyone else who has.

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