

Second Exam

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

25 pts

Suppose we have these variables, A,B and C.

1)

A	B	C
7	5	2
5	8	3
3	10	3
1	1	4

- a) Use the normal equations to find the regression coefficients for a model where C is a function of A and B. Show all work.
- b) Now use regression software to find these values. Hand in the printout. Be sure to type your name into it.

10 pts.

2)

SUMMARY OUTPUT

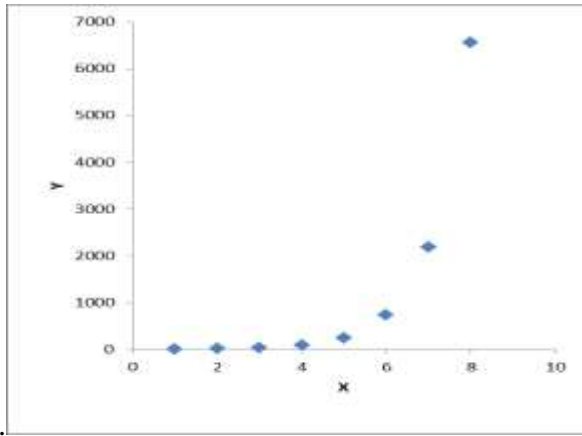
<i>Regression Statistics</i>	
Standard Error	0.316228
Observations	44

<i>Coefficients</i>	
Intercept	3.2
A	-0.4

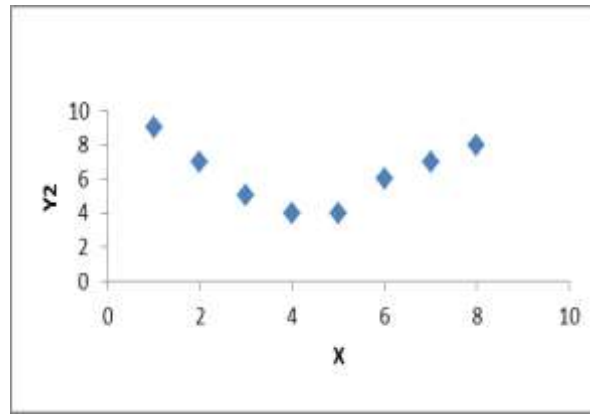
Given the values above, find a 90% confidence interval for the mean value of the dependent variable, when A is equal to it's mean, which is 20. Then find a 90% prediction interval for the dependent variable.

16 pts.

3)



A



B

- Describe a nonlinear equation that could fit each of the diagrams above, taking care to say how the coefficients should come out to make the shapes suggested by the plots.
- Describe the variables that you would have to create to get these models if all you had was Excel. And say what you could do with SPSS that would be easier.

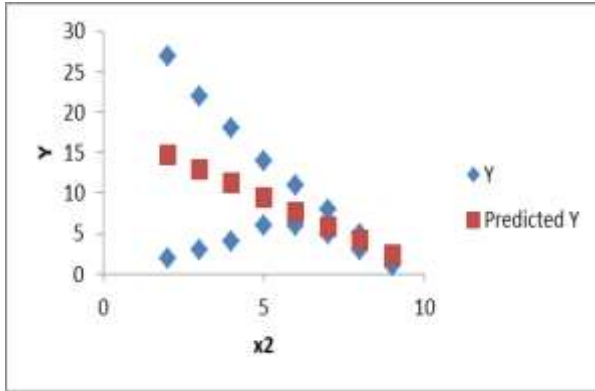
33 pts.

4) **Computer problem.** Open the Lakeland file in the Chap 15 folder for the 11th edition with SPSS.

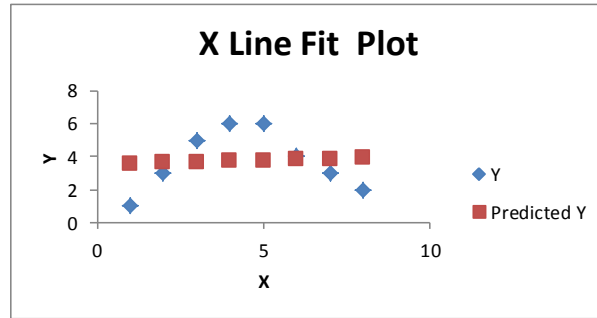
- Use SPSS to estimate a model where the GPA is a function of student number, program and return. Be sure to ask for a residual plot and to search for outliers and influential observations and collinearity.
- Are any of the variables significant at the 10 percent level? Explain.
- Interpret the Anova and the adjusted R^2 .
- Does the plot suggest any econometric problems? Explain.
- Is there any evidence of outliers or influential observations or collinearity.

16 pts.

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



A



B

What econometric problem is present in each diagram and describe the consequences of the problem.

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