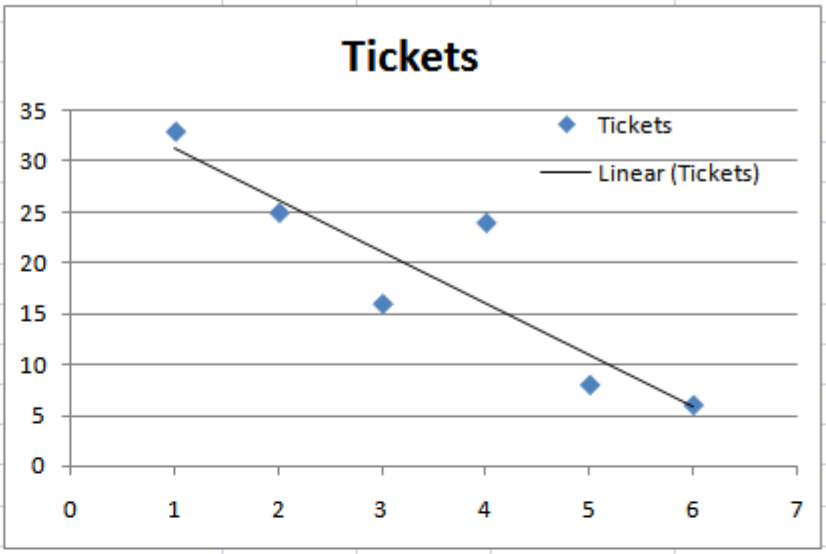
COB291, Management Science, Test 1, Summer 2008 Name _____

Regression Problem:

Table 4 below shows the Summary Output for using regression analysis to forecast the daily number of tickets for the last six days. Answer the following questions based on the information provided in Table 4.

Table 4



	A	B	C	D	E	F	G
31							
32							
33							
34							
35							
36	SUMMARY OUTPUT						
37							
38	*Regression Statistics*						
39	Multiple R	0.903					
40	R Square	0.815					
41	Adjusted R	0.769					
42	Standard E	5.067					
43	Observatic	6					
44							
45	ANOVA						
46		*df*	*SS*	*MS*	*F*	*Significance F*	
47	Regressior	1	452.629	452.629	17.628	0.014	
48	Residual	4	102.705	25.676			
49	Total	5	555.333				
50							
51		*Coefficients*	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
52	Intercept	36.467	4.717	7.730	0.002	23.369	49.564
53	Day	-5.086	1.211	-4.199	0.014	-8.449	-1.723
54							
55	**Day**	**Tickets**	**Predicted Tickets**				
56	1	33					
57	2	25					
58	3	16					
59	4	24					
60	5	8					
61	6	6					
62	7						

(1) (5 pts.) What is the general linear model to be used to model the linear trend for the number of tickets?

(2) (12 pts.) What is

a. the value of $b_1$as the estimated value of β_1 ,

b. interpret the meaning of β_1 and b_1?

(3) If you are asked to predict the number of tickets for Day 7,

a. (6 pts.) Write out the Excel@ formula in Cell C62 of the regression function?

b. (3 pts.) Calculate the predicted number of tickets for Day 7?

(4) Use the p-value approach to test the population parameters β_1 with the p-value from Table 4 Summary Output, and state your conclusion. Assume a significant level α value of 5%.

a. (2 pts.) What are the H_0 and H_1?

b. (3 points) What are the decision rules?

c. (2 pts.) What is the conclusion?

(5) In terms of the prediction confidence interval:

a. (2 pts.) What is the margin of error for an approximate 95% prediction interval of the Number of tickets for Day 7?

b. (3pts.) What is the approximate 95% prediction intervals of Number of tickets for Day 7?