King Fahd University of Petroleum & Minerals
Department of Mathematics & Statistics
STAT-319-Term153
Quiz #4

Name: ID: Serial:

The managers of a brokerage firm are interested in finding out if the number of new clients a broker brings into the firm affects the sales generated by the broker. They sample 12 brokers and determine the number of new clients they have enrolled in the last year and their sales amounts in thousands of dollars. These data are presented in the table that follows.

Clients	27	11	42	33	15	15	25	36	28	30	17	22
Sales	52	37	64	55	29	34	58	59	44	48	31	38

You are given the following information to help you carrying out the analyses:

$$\sum x = 301, \sum y = 549, \sum (x - \bar{x})^2 = 980.91667, \sum (y - \bar{y})^2 = 1564.25, \sum (x - \bar{x})(y - \bar{y}) = 1097.25$$

1. What is the least squares regression line for the number of new clients and the amount of sales? What is the meaning of the regression slope?

2. Prediction the amount of sales (in $1,000s) for a person who brings 25 new clients into the firm.

3. Test the significance of the regression.

4. What percentage of variability in clients is explained by sales?

5. Conduct a 95% C.I for the regression coefficient. Depend on this C.I, do you think that there is no relation between the two variables? Explain.

6. Provide a 95% C.I estimate for the average sales, for a person who brings 25 new clients into the firm.