

King Fahd University of Petroleum & Minerals  
Department of Mathematics & Statistics  
STAT-212-Term122  
Quiz #4

Name: \_\_\_\_\_

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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 (X)	27	11	42	33	15	15	25	36	28	30	17	22
Sales(Y)	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.** 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.

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