

Elementary Statistics

Name: _____

Study Guide 9

Class: _____

Due Date: _____

Score: _____

No Work \Leftrightarrow No Points

Use Pencil Only \Leftrightarrow Be Neat & Organized

1. Suppose working with a set of 5 ordered-pairs, we gathered the following:

$$\sum x = 20, \sum x^2 = 90, \sum y = 44, \sum y^2 = 430, \sum xy = 195$$

(a) (4 points) Find the value of linear correlation coefficient. Round to three decimal places.

(a) _____

(b) (2 points) Find the value of coefficient of determination. Round to the nearest whole percent.

(b) _____

(c) (4 points) Find the equation of the regression line.

(c) _____

(d) (2 points) Predict y value if $x = 4.5$ assuming the linear correlation is not significant.

(d) _____

2. Study time in hours and quiz result of 5 randomly selected students are given below in the form of ordered-pairs (Study Time, Quiz Result):

(3, 14), (2, 17), (1, 20), (4, 12), (5, 10)

(a) (3 points) Complete the table below using the data given:

x	y	x^2	y^2	$x \cdot y$
$\sum x =$	$\sum y =$	$\sum x^2 =$	$\sum y^2 =$	$\sum xy =$

(b) (2 points) Find the value of linear correlation coefficient. Round to three decimal places.

(b) _____

(c) (2 points) Find the equation of the regression line.

(c) _____

(d) (3 points) Predict the quiz result for someone who studied 2.5 hours assuming the linear correlation is significant. Round your final answer to a whole number.

(d) _____

3. Consider the following points below:

(2, 4), (6, 8), (6, 10), (2, 6), (4, 4), (10, 8), (8, 12),
 (6, 4), (14, 8), (16, 12), (18, 10), (14, 10), (20, 20)

(a) (2 points) Find the value of the coefficient of determination r^2 to the nearest percentage.

(a) _____

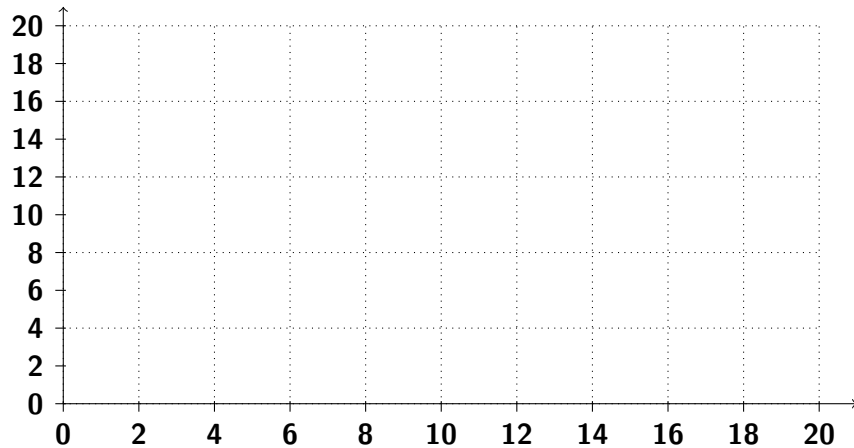
(b) (2 points) Find the equation of the regression line.

(b) _____

(c) (3 points) Assuming linear correlation is significant, predict the y value for $x = 10$.

(c) _____

(d) (3 points) Plot each point and draw the regression line below.



4. The midterm exam score and the overall grade for a random sample of 12 students in an elementary statistics course are shown in the following table.

Midterm Grade Score	50	90	70	80	60	90	90	80	70	70	60	50
Overall Grade	65	80	75	75	45	95	85	80	65	70	65	55

Table 1:
 Midterm Scores & Overall Grades

(a) (2 points) Find the value of the correlation coefficient r .

(a) _____

(b) (2 points) Find the value of the coefficient of determination r^2 to the nearest percentage and explain what the value means in the case.

(b) _____

(c) (2 points) Find the equation of the regression line.

(c) _____

(d) (3 points) Assuming linear correlation is significant, predict the overall grade if the midterm grade is 75.

(d) _____

5. The body weight and the blood sugar level for a random sample of 10 randomly selected adults are shown in the following table.

Body Weight	150	190	135	180	145	180	210	145	177	195
Blood Sugar Level	105	125	99	115	125	132	155	100	135	145

(a) (2 points) Find the value of the correlation coefficient r .

(a) _____

(b) (2 points) Find the value of the coefficient of determination r^2 to the nearest percentage and explain what the value means in the case.

(b) _____

(c) (2 points) Find the equation of the regression line.

(c) _____

(d) (3 points) Assuming linear correlation is not significant, predict the blood sugar level for an adult who weighs 160 pounds.

(d) _____