Elementary Statistics	Name:
Study Guide 9	Class:
Due Date:	Score:

Your solutions must be consistent with class notes & resources.

Be Neat, Organized, and No Work $\Leftrightarrow$ No Points

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1. **(4 points)** Study time in hours and quiz result of 4 randomly selected students are given below in the form of ordered–pairs (Study Time, Quiz Result):

$$(3, 16), \ (2, 15), \ (0, 8), \ (4, 18)$$

Complete the table below using the given data.

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

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2. **(4 points)** Complete the following chart for whenever you wish to predict the y - Value using the linear correlation. Be very specific about your answers.

When linear correlation	r is significant.	r is not significant.
Use		

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3. 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, and round to the nearest whole percent.
Explain what this percentage tells us about the data set of ordered-pairs.

(b) _____

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

(c) _____

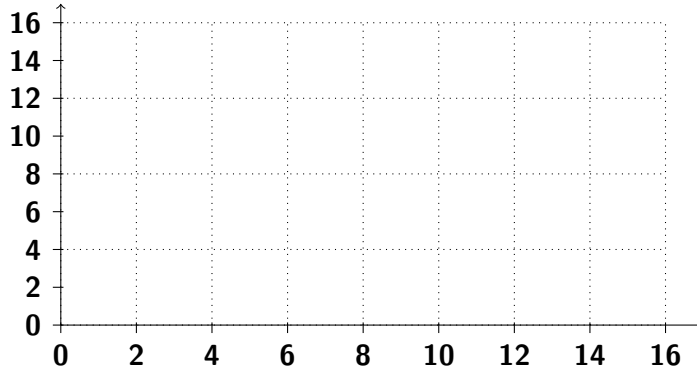(d) (**2 points**) Predict y value if $x = 4.5$ assuming the linear correlation is significant.

(d) _____

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

(e) _____

4. Consider the following points below:

$$(2,4), (6,8), (6,10), (2,6), (4,4), (10,8), (8,12), (6,4), (14,8), (16,12)$$

(a) **(4 points)** Plot each point and draw the best fitting line below.

(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) **(2 points)** Assuming linear correlation is not significant, predict the y value for $x = 10$.

(d) _____

5. 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

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

(a) _____

(b) **(3 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) _____

6. 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) **(3 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) _____

Write flashcards of formulas and how to use your calculator.