

Assignment 9 – Chapter 9 Homework

1) Given the length of a humans femur, x , and the length of a humans humerus, y , would you expect a positive correlation, a negative correlation, or no correlation?

2) Given the size of a humans brain, x , and their score on an IQ test, y , would you expect a positive correlation, a negative correlation, or no correlation?

3) Calculate the correlation coefficient, r , for the data below.

x	-14	-12	-5	-8	-10	-11	-9	-7	-6	-13
y	-18	-16	1	-7	-10	-14	-9	-5	-2	-16

4) Given the equation of a regression line is $\hat{y} = -5.5x - 9.4$, what is the best predicted value for y given $x = -2.8$? Assume that the variables x and y have a significant correlation.

5) Given the equation of a regression line is $\hat{y} = 2x - 5$, what is the best predicted value for y given $x = 10$? Assume that the variables x and y have a significant correlation.

6) Use the regression equation to predict the value of y for $x = 2.2$. Assume that the variables x and y have a significant correlation.

x	-5	-3	4	1	-1	-2	0	2	3	-4
y	-10	-8	9	1	-2	-6	-1	3	6	-8

7) Find the standard error of estimate, se , for the data below, given that $\hat{y} = -2.5x$.

x	-1	-2	-3	-4
y	2	6	7	10

8) A researcher found a significant relationship between a student's IQ, x_1 , grade point average, x_2 , and the score, y , on the verbal section of the SAT test. The relationship can be represented by the multiple regression equation $\hat{y} = 250 + 1.5x_1 + 80x_2$. Predict the SAT verbal score of a student whose IQ is 129 and grade point average is 3.8.

9) A researcher found a significant relationship between a person's age, x_1 , the number of hours a person works per week, x_2 , and the number of accidents, y , the person has per year. The relationship can be represented by the multiple regression equation $\hat{y} = -3.2 + 0.012x_1 + 0.23x_2$. Predict the number of accidents per year (to the nearest whole number) for a person whose age is 47 and who works 46 hours per week.

10) Given the equation of a regression line is $\hat{y} = -1.04x + 50.3$, determine whether there is a positive linear correlation or a negative linear correlation.