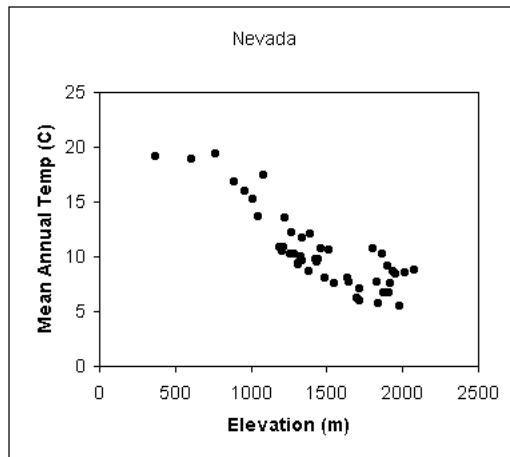# WORKSHEET 10 & 13

1. **From the following scatter plot, the relationship can be described as:**

   A) Strong positive

   B) Strong negative

   C) Perfect negative

   D) Perfect positive

2. **Which of the following values <u>cannot</u> represent a correlation coefficient?**
   A) $r = 1.08$
   B) $r = 0.95$
   C) $r = 0$
   D) $r = -1.0$

3. **Compute the value of Pearson product moment correlation coefficient for the data below:**

X	-2	-5	3
Y	7	-1	2

   A) $r = 0.002$
   B) $r = 0.235$
   C) $r = -0.235$
   D) $r = -0.002$

4. **The range of the correlation coefficient (r) is …….**
   A) $-1 < r < 1$
   B) $0 \le r \le 1$
   C) $-1 \le r \le 0$
   D) $-1 \le r \le 1$

5. **If the differences between the ranks of two variables are (-1, -4, 2, 1, -2, 2, 2), find Spearman rank correlation coefficient.**
   A) $r_s = -0.607$
   B) $r_s = 0.393$
   C) $r_s = -0.393$
   D) $r_s = 0.607$

6. **Compute Spearman rank correlation coefficient for the following data:**

Variable 1	6	7	5	4	3	1
Variable 2	-1	9	2	3	4	7

   A) -0.143
   B) -0.116
   C) -1.143
   D) 0.143

Use the following to answer questions (7 and 8)

A researcher has formed the relationship between the height in centimeters (x) and the weight in kilograms (y) by the following regression line equation:

$$y' = -5.13 + 0.467\,x$$

7. **Predict the weight of a person whose height is 169 cm.**
   A) 78.804
   B) 84.053
   C) 77.923
   D) 73.793

8. **For each increase of the height by one centimeter, the weight ....**
   A) decreases 5.13 kilograms on average.
   B) increases 5.13 kilograms on average.
   C) increases 0.467 kilograms on average.
   D) decreases 0.467 kilograms on average.

9. **A researcher wants to determine if there is a relationship between the number of hours a person goes without sleeping (x) and the number of mistakes he makes on a simple test (y). The following data are recorded:**
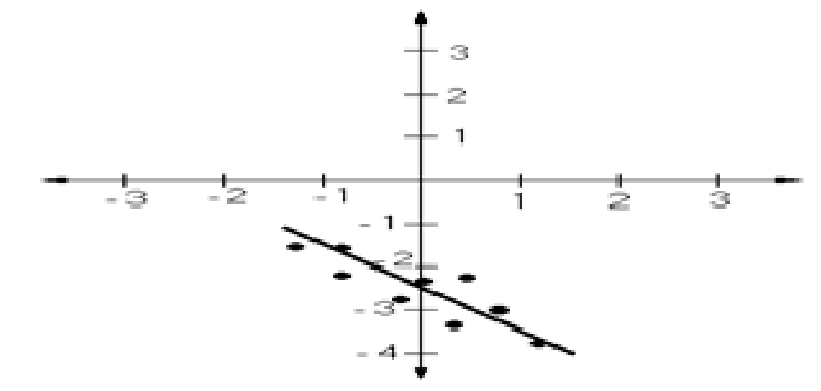 $$n = 10, \ \sum x = 50, \ \sum y = 20, \ \sum xy = 114, \ \sum x^2 = 300$$
   The equation of the regression line is:

   A) $y' = 0.6 + 0.28\,x$
   B) $y' = 0.28 - 0.6\,x$
   C) $y' = -0.6 + 0.28\,x$
   D) $y' = 0.28 + 0.6\,x$

10. **If the equation of the regression line is $y' = -0.3\,x + 0.4$, then the correlation coefficient between the two variables will be ....**
   A) positive
   B) -0.3
   C) negative
   D) 0.4

11. **Determine the regression line equation from the following graph:**

   A) $y' = -1.8 - 2.5\,x$
   B) $y' = -2.5 - 1.8\,x$
   C) $y' = -2.5 + 1.8\,x$
   D) $y' = 1.8 - 2.5\,x$

12. The equation of the regression line between the age of a car in years (x) and its price in Riyals (y) is given by:

$$y' = 65.3 - 9.25\,x$$

The correct statement that represents this equation is:

A) When the age of the car increases one year, its price decreases (65.3) Riyals on average.

B) When the price of the car increases one Riyal, the age decreases (9.25) years on average.

C) When the age of the car increases one year, its price decreases (9.25) Riyals on average.

D) When the price of the car increases one Riyal, the age decreases (65.3) years on average.

Answer Key:

1. B
2. A
3. B
4. D
5. B
6. A
7. D
8. C
9. A
10. C
11. B
12. C