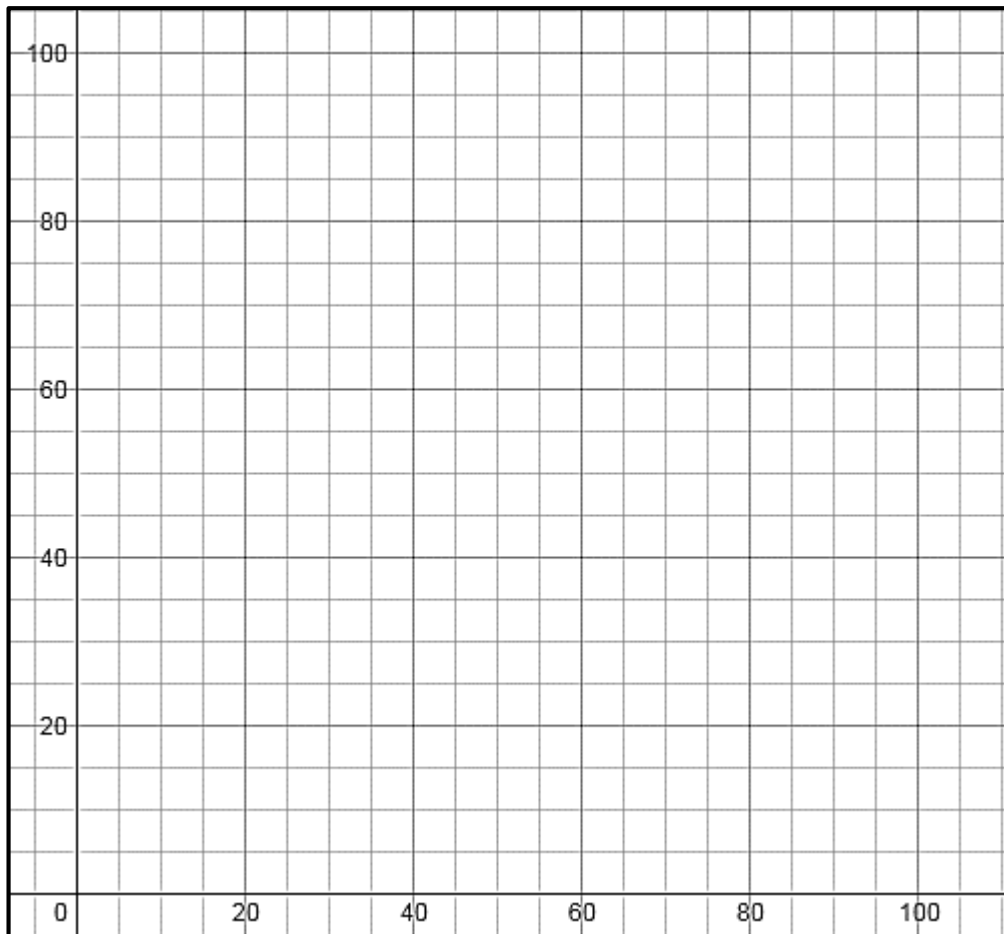


Use the information below to answer questions 1 - 9.

A teacher would like to investigate if the weight of students affects their performance in class. He therefore carry out a study by sampling out 15 student in grade 9, measure their weight and gets the performance in mathematics from their past term reports.

Weight(lbs.)	58	65	63	66	66	67	65	68	69	70	71	73	74	79	80	88
Performance(%)	50	73	70	65	55	66	89	75	62	50	63	74	78	82	62	65

1. Draw a scatter plot to represent the data above



2. Find the equation of the line of the best fit.

3. Determine the correlation coefficient of the variables.

4. Identify this type of correlation.

5. From the correlation, how is the change in performance when the weight of the student increases?

6. Interpret the slope of the graph

7. Explain why the interpretation of the slope is applicable or not applicable to real life

situation.

8. From the results what was the conclusion of the teacher.

9. Why the conclusion?

Use the information below to answer questions 10 – 13.

A researcher is interested in determining the linear relationship between the consumption of water and the number of people in each household. After the study, he found that the correlation coefficient was 0.61.

10. Identify the type of correlation

11. What is the effect on the amount of consumption of water with an increase in the number of people in each household?

12. State if true or false. The decrease in the number of people in a household drastically decreases the amount of consumption of water.

13. Explain your answer above.

Use the information below to answer questions 14 – 19.

A laboratory expert is growing a culture of bacteria for further investigation. He finds that the decrease in temperature greatly decreases the growth of the culture while the increase in temperature drastically increases the multiplication process.

14. What is the correlation between the rate of growth of culture and the increase in the degree of coldness?

15. Identify the possible correlation coefficient for the relationship in 14 above among  $r = 0.95$ ,  $r = 0$ ,  $r = -9.6$  and  $r = 0.46$ .

16. What is the correlation coefficient between the rate of growth of culture and the increase in the degree of hotness?

17. Identify the possible correlation coefficient for the relationship in 14 above among  $r = 0.95$ ,  $r = 0$ ,  $r = -9.6$  and  $r = 0.46$ .

18. The expert would like to maintain the relative size of culture after the growing to the required size. Between a freezer and warm container, which one is the best for storing the culture?

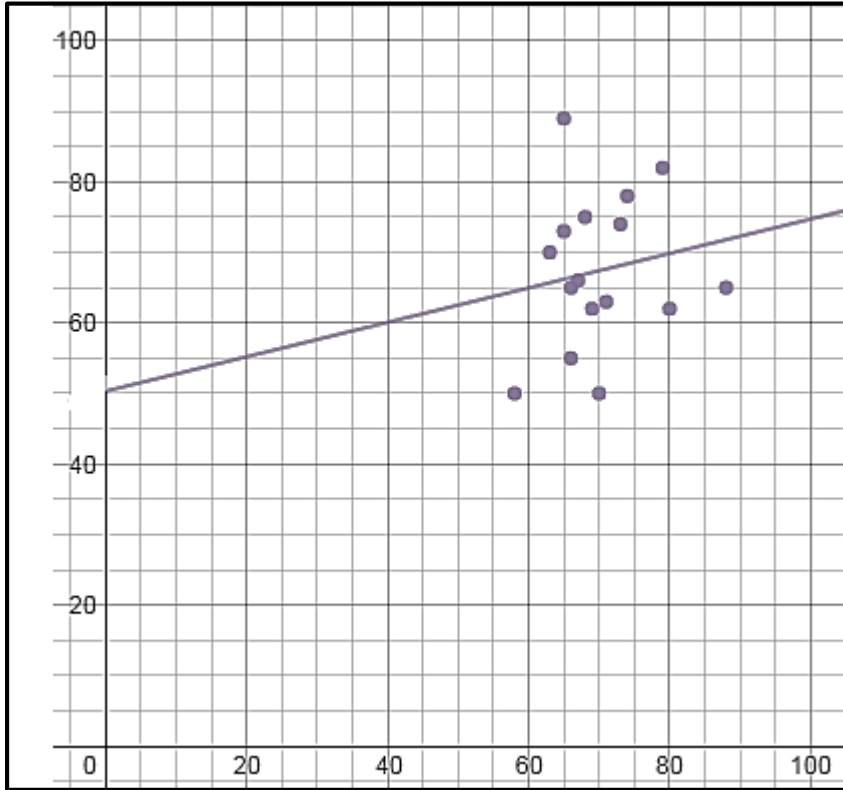
19. Explain your answer in 18 above.

20. In which situation can we have the correlation coefficient of 1 when the results do not reflect the true real-life situation?

**Answer Keys**

**Day 44:**

1.



2.  $y = 0.24x + 50$
3. Around 0.17
4. Weak positive correlation
5. Increase in weight leads to an increase in performance
6. There is an increase of 0.24% marks for each increase in weight
7. This is not true because the weight and the performance do not have a strong linear correlation
8. The weight of the student has insignificant effect (very little) effect on the performance of the student
9. The performance and the weight has a very weak linear correlation hence the later cannot be used to determine the performance.

10. Moderate positive correlation
11. Increase in the number people in a house gradually increases the consumption of water
12. False
13. The two variables do not have a perfect strong linear correlation rather a moderate one hence the decrease in the number of people in a household will decrease gradually and not drastically the consumption of water.
14. Strong negative correlation
15.  $r = -9.6$
16. Strong positive correlation
17.  $r = 0.95$
18. freezer
19. A freezer has very low temperatures which do not favor the growth of the culture
20. In situations where the independent variable is not the only factor that affects the change in the dependent variable.