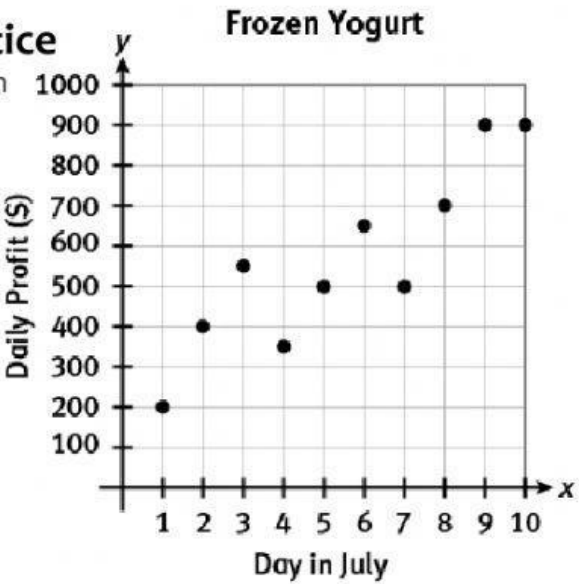


Activity 13 Practice

The scatter plot shows the relationship between the day of the month and a frozen yogurt stand’s daily profit during the month of the July.

- 1. Draw the trend line.
- 2. Are the data points linear? Explain.
- 3. Identify the correlation by circling the correct answer:
 - A. Perfect positive linear correlation
 - B. Strong positive linear correlation
 - C. Weak positive linear correlation
 - D. Perfect negative linear correlation
 - E. Strong negative linear correlation
 - F. Weak negative linear correlation

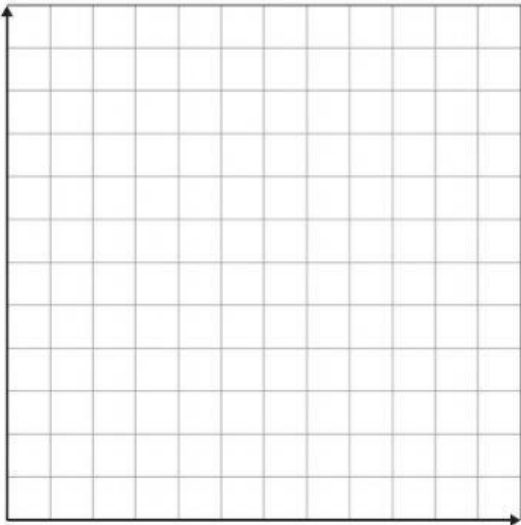


- 4. Identify the independent variable: _____
- 5. Identify the dependent variable: _____
- 6. Does causation exist?
- 7. Use the trend line you drew to predict the daily profit on July 13th.

The manager of a local history museum experiments with different prices for admission to the museum. For each price, the manager notes the number of visitors who enter the museum on that day. The table shows the data.

Price	\$2.75	\$3.50	\$4.25	\$5.75
Number of Daily Visitors	112	88	66	63

- 8. Create a graph of the data below and sketch the trend line:



- Perform a linear regression for the data.
- 9. What is the equation of the line? _____
 - 10. What is the slope of the trend line? _____
 - 11. What does the slope represent in the context of this problem?
 - 12. What is the y-intercept? _____
 - 13. What does the y-intercept represent in the context of this problem?
 - 14. Use your equation to predict how much they would charge if the daily value was of the number of visitors was 103:

Tell if each statement about the data is true or false:

- 16. _____ A trend line on the scatter plot has a positive slope.
- 17. _____ The y-intercept of the trend line is above the x-axis.
- 18. _____ The trend line predicts at least 70 visitors when the admission price is \$6.25.
- 19. _____ The trend line fits the data perfectly because the data is linear.

Use your calculator to perform a linear regression for the following data.

$(-6, -3), (-8, -4), (-2, 1), (1, 4), (3, 6), (5, 8), (7, 13)$

20. What is the equation of the line of best fit? _____
21. What is the value of the slope? _____
22. According to your model, what is the value of y when $x = -19$? _____
23. According to your model, for what value of x is $y = 100$? _____

25. Circle the following pairs of variables are likely to show a negative correlation:

- the number of minutes you have waited for a bus; the number of minutes remaining until the bus arrives
- the length of a shoe; the size of the shoe
- the number of miles on a car's odometer; the age of the car
- the weight of a watermelon; the price of the watermelon

At several times during the school year, Emilio collected data on the height of a plant in the classroom and the total number of quizzes he had taken so far in his science class. The data are shown in the table.

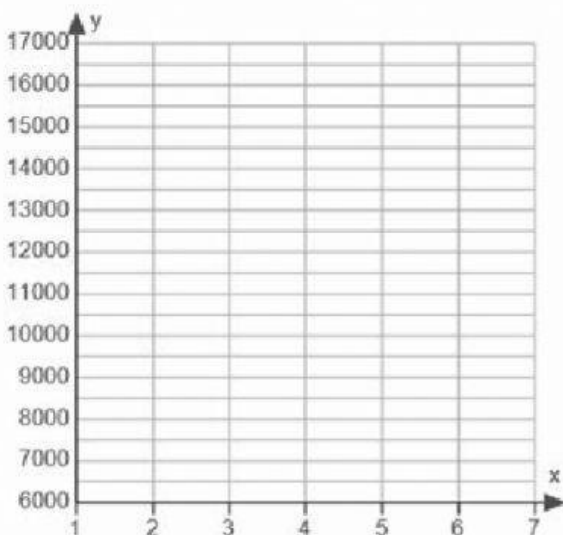
Height of Plant (cm)	16	19	22	26
Total Number of Quizzes	4	6	7	9

26. Is there a correlation between the variables? Explain.
27. Is there causation between the variables? Explain.

The table below gives the amount of Krabby Patties made by Spongebob for each year he's worked.

Graph the data on a scatter plot, find the line of best fit, and write the equation for the line you draw.

Years worked	1	2	3	4	5	6
Patties made	6,500	7,805	10,835	11,230	15,870	16,387



28. Linear Regression Equation: _____

31. Type of Correlation: _____

32. Is the correlation strong? Explain

33. Using the linear regression equation predict how many Krabby Patties he will make after working 10 years.