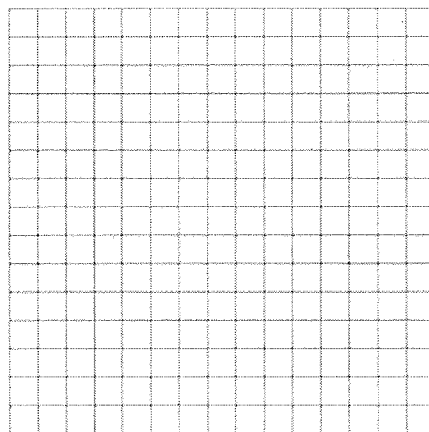


Additional Practice**Investigation 4****Thinking With Mathematical Models**

For exercises 1 and 2, use the table below. It shows the estimated ages in years and circumferences of the pin oak trees in one park.

Circumference (inches)	Age (years)
32	28
45	34
20	20
28	26
66	50
57	43
41	30

- Describe in words the relationship between the circumference of a pin oak tree and its estimated age in years.
 - Predict the age of a tree with a circumference of 50 inches. Explain.
- Make a scatter plot from the table. Draw a line from the point representing the youngest tree to the point representing the oldest tree.



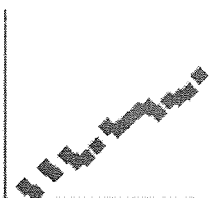
- Write an equation representing the line. Use y for age in years and c for circumference in inches.
- Estimate a correlation coefficient for the data. Explain your choice.

Additional Practice *(continued)*

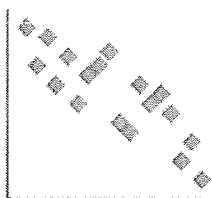
Investigation 4

Thinking With Mathematical Models

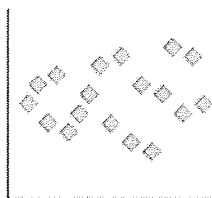
3. a. Estimate the correlation coefficient of each graph. Assume all graphs are scaled the same.



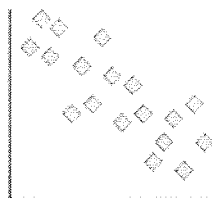
A



B

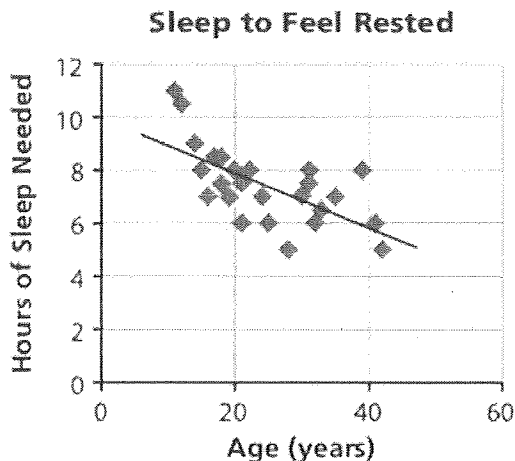


C



D

- b. Order the graphs from weakest correlation to strongest correlation.
4. The graph shows the results of a survey about the relationship between age and sleep. The graph also shows a model line for the data.



- a. Describe in words the relationship between age and the number of hours of sleep needed to feel rested.
- b. Estimate a correlation coefficient for the data. Is it closest to -1 , -0.5 , 0 , 0.5 , or 1 ? Explain your choice.
- c. Can the model line be used to predict the number of hours of sleep needed by a person who is 80 years old? Explain your reasoning.

Additional Practice *(continued)*

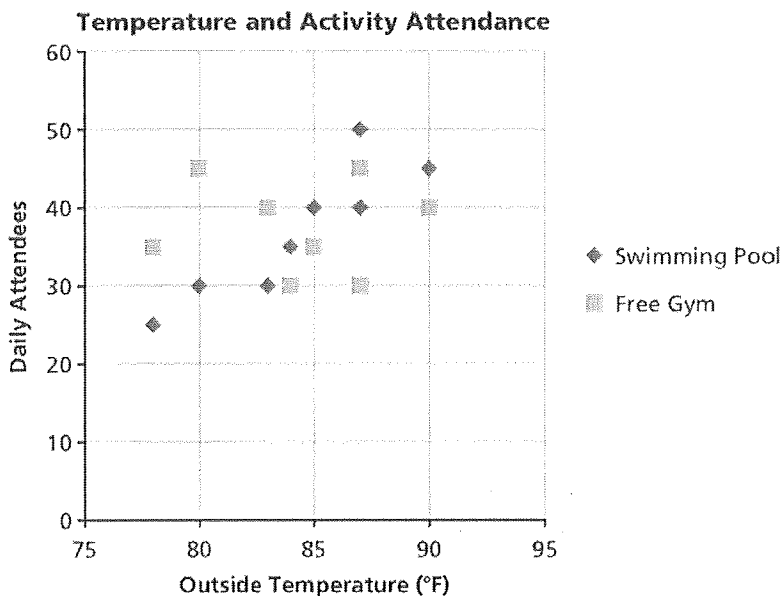
Investigation 4

Thinking With Mathematical Models

A recreation center collected data on the outside temperature and the number of people who participated in each activity. The table shows the data.

Temp. (°F)	83	90	90	87	78	80	84	85	85	87
Swimming Pool	30	40	45	50	24	30	34	34	40	40
Free Gym	40	40	40	45	36	45	30	35	35	30

7. a. Graph the data on a scatter plot. Use two different marks or colors to represent the data for swimming and the data for free gym.



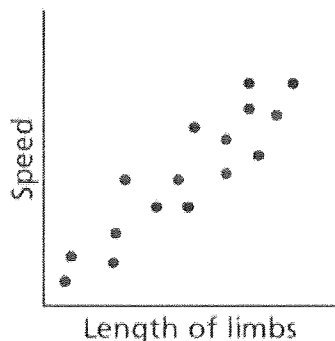
- b. Does the outside temperature affect the number of people who participated in each activity? Explain your answer.
- c. Suppose you drew one linear model to represent all the data on the graph. Could you use the model and the forecasted high temperature for a given day to predict the number of swimmers who will come on that day? Explain.

Additional Practice: Digital Assessments

Investigation 4

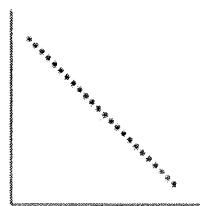
Thinking With Mathematical Models

9. The graph below shows the speeds of some species of ants plotted against their limb length. Decide which of the statements below are true. *Select all that apply.*

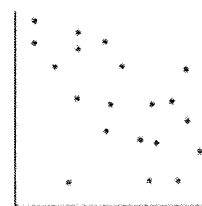


- The data are positively correlated.
- The data are inversely correlated.
- The data are negatively correlated.
- The correlation coefficient is closest to 1.00.
- The correlation coefficient is closest to -1.00.
- The correlation coefficient is closest to 0.50.

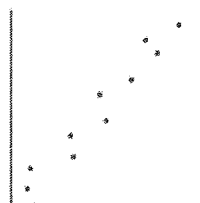
10. Order graphs A–D from weakest to strongest correlation.



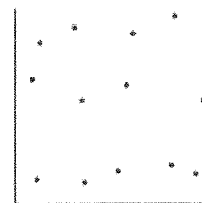
A



B



C



D

, , ,

Skill: Describing Data Sets *(continued)*

Investigation 4

Thinking With Mathematical Models

Determine the mean and median for each set of numbers.

9. 0, 6, 12, 24, 48

10. 1.2, 1.1, 1.4, 1.2, 1.1

11. 124, 118, 140, 136, 142

12. 5.2, 6.1, 4.5, 8.6, 7.8, 8.0

13. \$3.00, \$3.25, \$2.75, \$4.00,
\$3.75, \$4.25

14. 72, 70, 64, 67, 76, 71

15. 120, 200, 110, 120, 140, 140, 150

16. 87, 90, 85, 79, 80, 95, 99, 95, 95