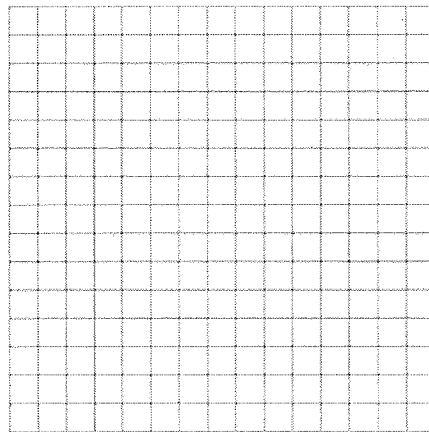# Additional Practice

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

1. a. Describe in words the relationship between the circumference of a pin oak
   tree and its estimated age in years.

   b. Predict the age of a tree with a circumference of 50 inches. Explain.

2. a. Make a scatter plot from the table. Draw a line from the point representing
   the youngest tree to the point representing the oldest tree.

   b. Write an equation representing the line. Use y for age in years and c for
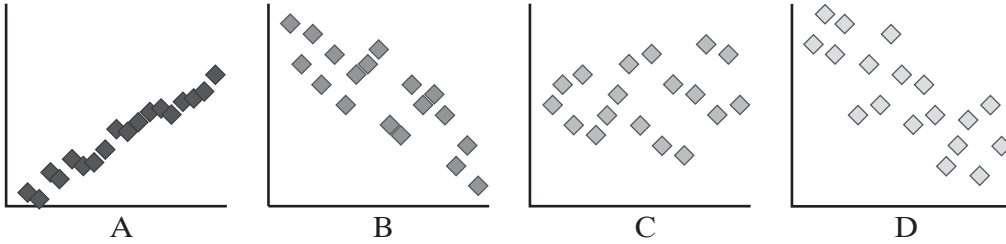   circumference in inches.

   c. Estimate a correlation coefficient for the data. Explain your choice.

Additional Practice *(continued)*

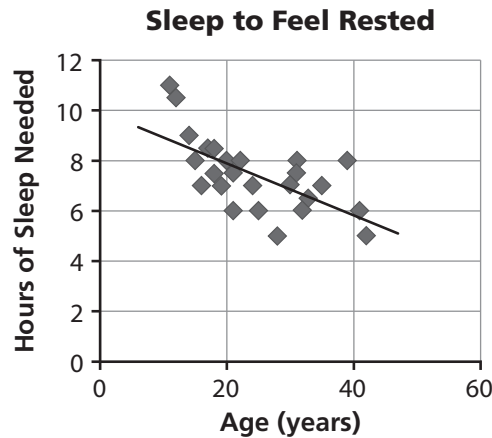**3. a.** Estimate the correlation coefficient of each graph. Assume all graphs are scaled the same.

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.

Sleep to Feel Rested

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)*

Use the information below to complete exercises 5 and 6.

A math class gave each person in two groups the same 100-word passage to memorize. Group A practiced by reading it silently multiple times during the day. Group B practiced by reviewing the passage in different ways, such as with art techniques.

The table shows the number of words accurately remembered by people in each group two days later.

Group A	48	50	58	50	54	48	60	42	48	52
Group B	60	60	82	74	64	68	64	74	74	82

5. a. Make a dot plot to represent each data set.

b. Describe the distribution for each data set.

6. a. Calculate the mean, median, and standard deviation who participated in each data set.

b. Could you use the distributions to predict the number of words remembered by a person who studied using a computer game? Explain.
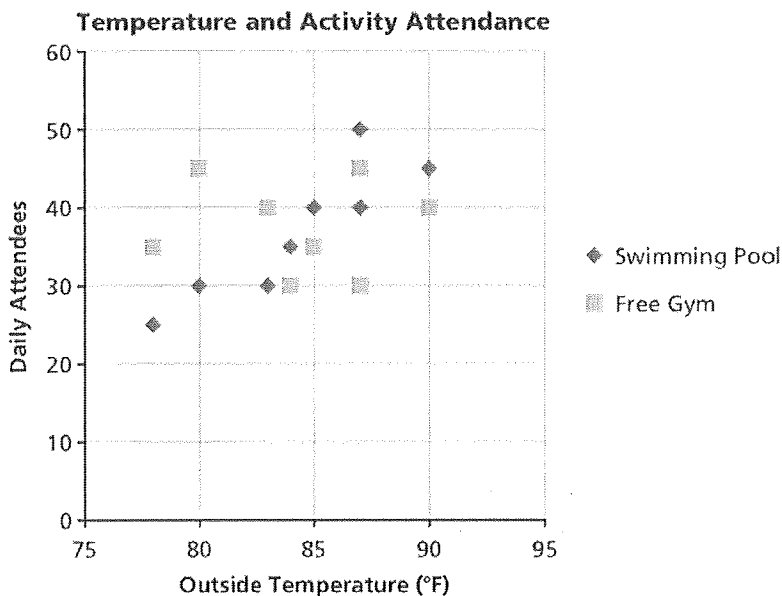
Additional Practice (continued)

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.

**Temperature and Activity Attendance**

◆ Swimming Pool

▦ 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.
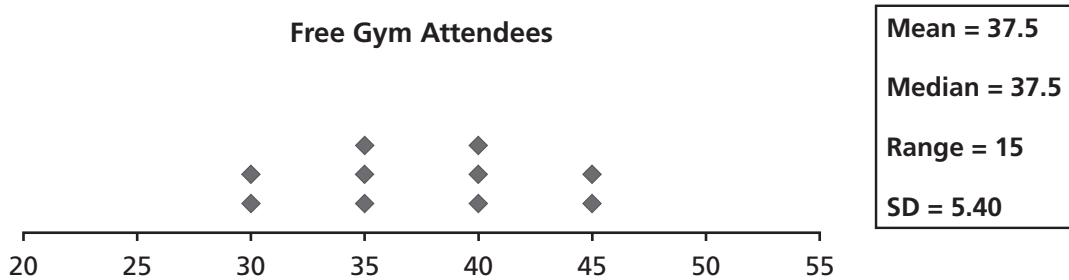
Additional Practice *(continued)*

8. a. Use the statistics in the box to describe the spread of the daily number of attendees to the swimming pool.

Swimming Pool Attendees

| Mean = 37 |
| Median = 37.5 |
| Range = 25 |
| SD = 7.53 |
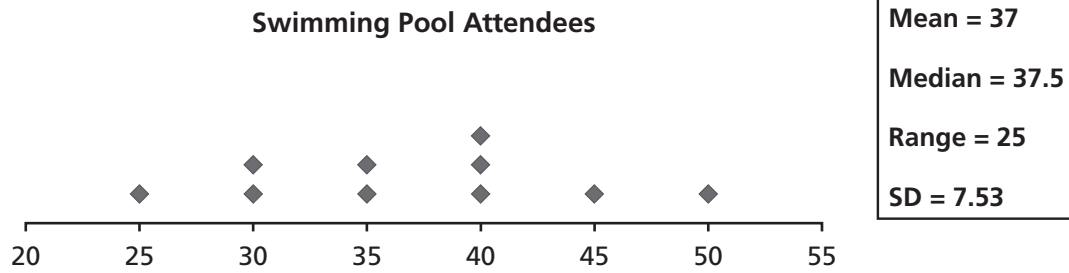
b. Use the statistics in the box to describe the spread of the daily number of attendees to free gym.

Free Gym Attendees

| Mean = 37.5 |
| Median = 37.5 |
| Range = 15 |
| SD = 5.40 |

Additional Practice: Digital Assessments

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*.

Length of limbs
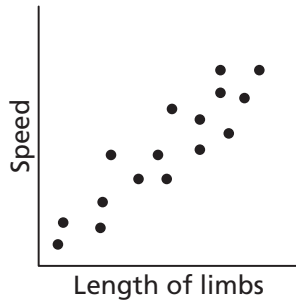
☐ The data are positively correlated.

☐ 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.

☐ , ☐ , ☐ , ☐
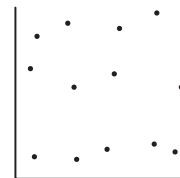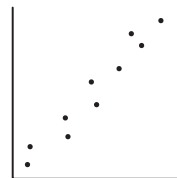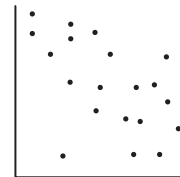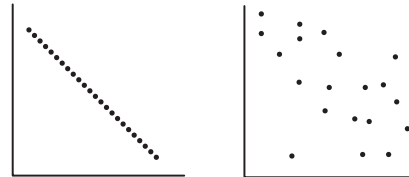
11. Consider the data set 16, 12, 18, 2, 6. Circle the terms that make each statement true.

a. The $\begin{bmatrix} \text{mean} \\ \text{median} \\ \text{standard deviation} \end{bmatrix}$ is 10.8.

b. The $\begin{bmatrix} \text{mean} \\ \text{median} \\ \text{standard deviation} \end{bmatrix}$ is 12.

c. The $\begin{bmatrix} \text{mean} \\ \text{median} \\ \text{standard deviation} \end{bmatrix}$ is about 6.72.

Additional Practice *(continued)*

Use the information in the table for exercises 3 and 4.

The table shows the results of a survey related to the musical preferences of all the students at a middle school.

	Country	Pop	Rock	Other
Sixth Grade	10	12	8	10
Seventh Grade	10	12	12	16
Eighth Grade	15	11	12	8

3. Classify each statement as true or false. Justify your answer.

   a. Seventh graders are more likely to prefer pop music than eighth graders.

   b. It is equally likely that someone who likes country music is in sixth grade as they are in seventh grade.

   c. It is less likely that an eighth grader likes pop music than rock music.

   d. It is equally likely that a sixth grader likes rock music as an eighth grader likes music that is not country, pop, or rock.

Additional Practice (continued)

The table shows the results of a survey related to the musical preferences of all the students at a middle school.

	Country	Pop	Rock	Other
Sixth Grade	10	12	8	10
Seventh Grade	10	12	12	16
Eighth Grade	15	11	12	8

4. Complete each table to show the percents represented by the different musical preferences. Round to the nearest whole percent if needed.

a. Percent of students in a **grade level** who like a type of music

	Country	Pop	Rock	Other
Sixth Grade	$\frac{10}{40} = 0.25 = 25\%$			
Seventh Grade				
Eighth Grade				

b. Percent of students who **like a type of music** that are in a certain grade

	Country	Pop	Rock	Other
Sixth Grade	$\frac{10}{35} \approx 0.29 = 29\%$			
Seventh Grade				
Eighth Grade				

c. Percent of **all** students surveyed

	Country	Pop	Rock	Other	Total
Sixth Grade					
Seventh Grade					
Eighth Grade					
Total					

Additional Practice *(continued)*

5. One day, an online store recorded the number of purchases made by customers in a given age range.

a. Complete the table.

Age Range	Music	Games	Total
Less than 18 years	62	64	
18 to 29 years	54	59	
30 to 50 years	45	51	
Older than 50 years	15	10	
Total			

b. Complete the table to display the number of customers in each age group who buy music or games.

Age Range	Music	Games	Total
Less than 30 years			
30 years or older			
Total			

c. Is it twice as likely that someone who purchased music is less than 30 years old? Explain.

d. For customers less than 30 years old, is it more likely that they will purchase music or purchase games? Explain.

e. For customers 30 years or older, is it more likely that they will purchase music or games? Explain.

Additional Practice *(continued)*

6. The table shows the results of an experiment on 40 rose bushes that studied the effects of shade and sunlight on roses. Half the bushes were given partial sunlight (less than 6 hours per day), which the other half were exposed to full sunlight (at least 6 hours per day). The experiment measured the extent to which plants in each group were covered in blooms.

Amount of Direct Sunlight	Coverage in Blooms		
	Less than Average	Average	More than Average
Partial (less than 6 hours)	8	10	2
Full (at least 6 hours)	3	5	12

a. Create a table to show the percent of bushes in each test group that had less than average, average, or more than average coverage in blooms.

b. Create a double bar graph to compare the percentages you found in part (a).

c. Does the table show evidence that bushes planted in partial sunlight are as likely to produce at least an average coverage of blooms as a bush planted in direct sunlight? Explain.

Additional Practice: Digital Assessments

Thinking With Mathematical Models

7. Twenty-four students in the 8th grade volunteered to clean up the park on Saturday. There are a total of 40 students in the 8th grade. Which choices represent the students who volunteered to clean up the park? *Select all that apply*.

☐ 24%

☐ 40%

☐ 60%

☐ 24 out of 40

☐ 16 out of 40

☐ $\frac{16}{40}$

☐ $\frac{36}{40}$

8. A marching band has 60 students. Of these, 6 play trumpets. Use the tiles to show the fraction of the band that is trumpet players, the fraction in lowest terms, and the equivalent percent. Each tile may be used more than once.

| 60 | 10 | 95 | 4 |

| 6 | 15 | 1 | 3 |

$$\frac{\boxed{}}{\boxed{}} = \frac{\boxed{}}{\boxed{}} = \boxed{} \%$$

9. This table shows the results of a survey of favorite colors among the 7th- and 8th-grade students.

	Blue	Red	Green	Orange
7th grade	5	7	10	3
8th grade	4	11	8	2

The table shows the percentages of each grade that chose each color. Use the values in the bank to complete the table.

| 28% | 24% | 36% | 16% | 40% | 4% | 8% | 32% |

	Blue	Red	Green	Orange
7th grade	20%			12%
8th grade		44%		