Name _____ Date _____

# Using Best-Fit Lines

**1.** Each year, Mrs. Welch, a gym teacher at Bessie Coleman School, records the number of sit-ups each student can do. Nila used her data to make a graph that shows the number of sit-ups she could do each year.

**A.** Describe the graph.

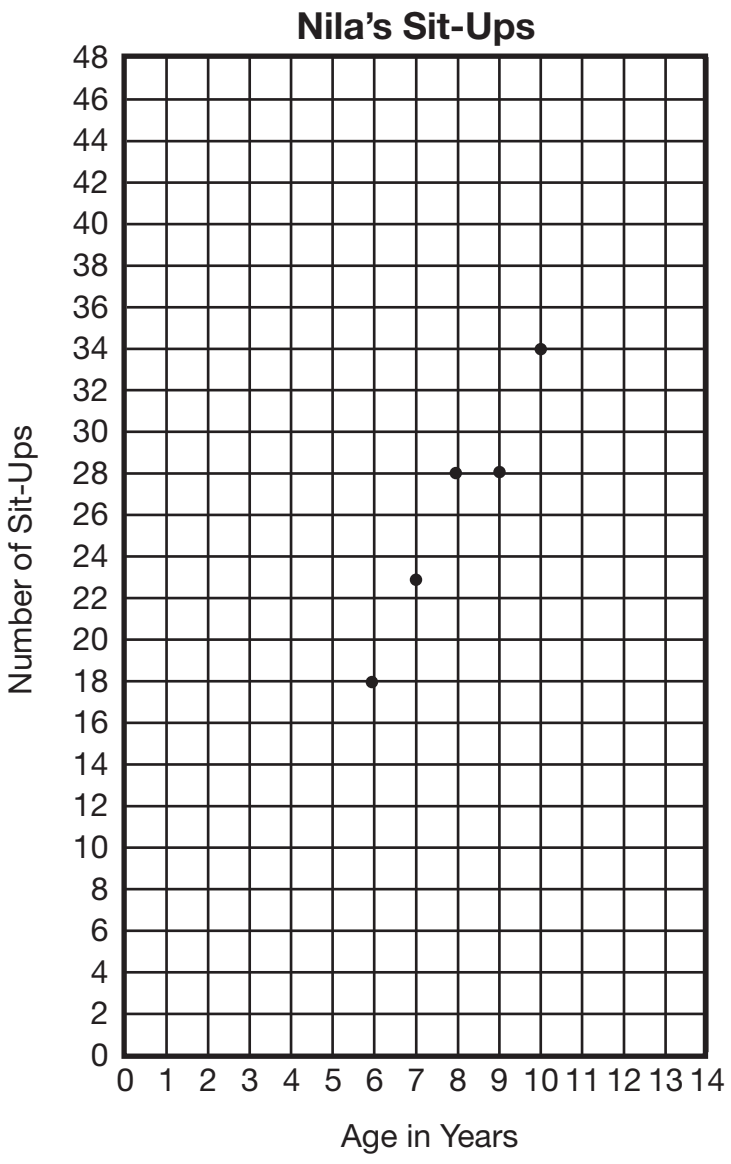
**B.** If you read the graph from left to right, do the points go uphill or downhill?

**C.** What does the graph tell you about the number of sit-ups Nila can do?

**D.** Do the points lie close to a straight line? If so, use a ruler to draw a best-fit line.

**E.** If possible, predict the number of sit-ups Nila will be able to do when she is 12. Show any work on the graph.

**F.** Does knowing Nila's age help you predict the number of sit-ups she can do?



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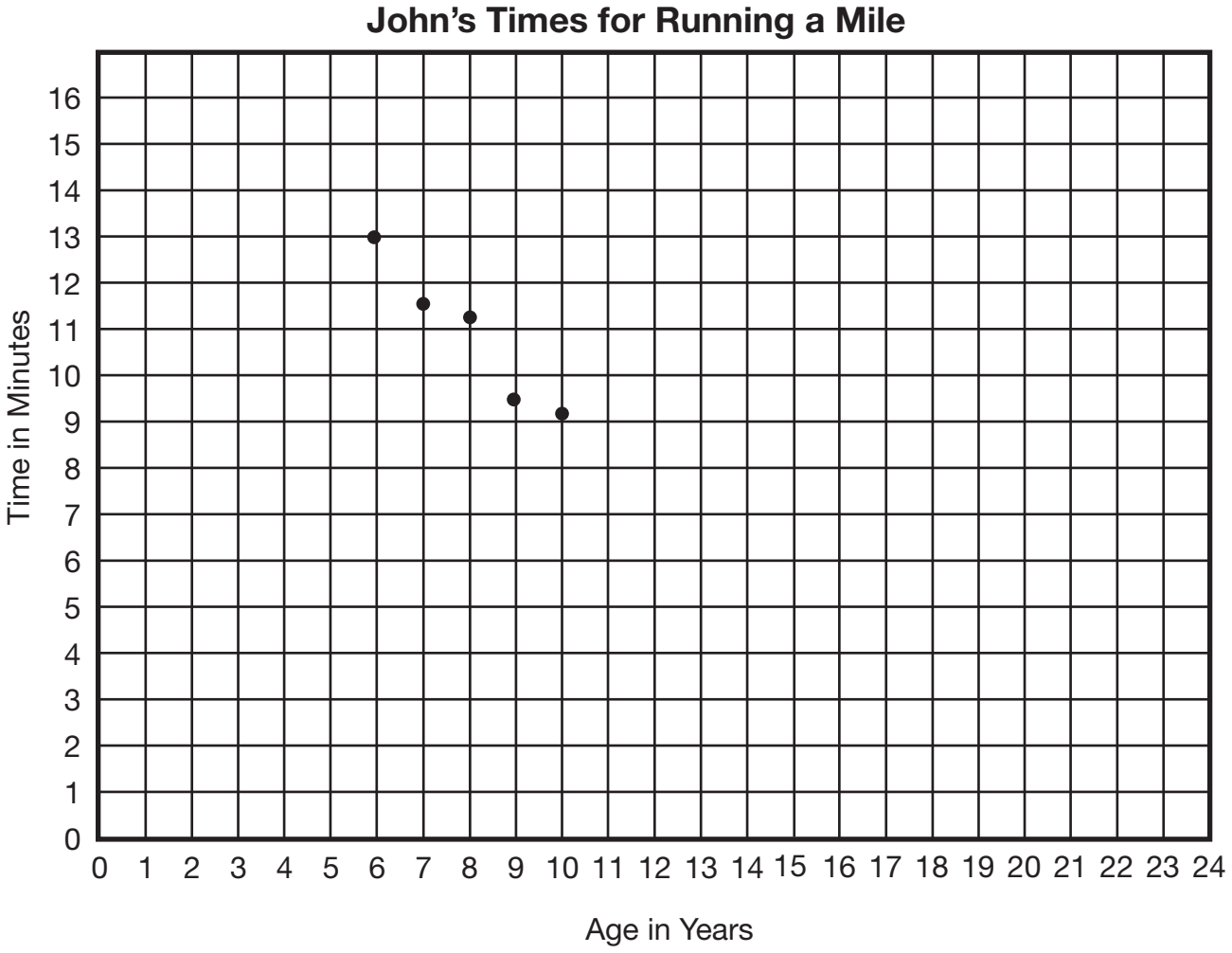
**2.** Mrs. Welch also records each student's best times for running a mile. John graphed his best times.




**A.** Describe the graph.

**B.** Do the points tend to go uphill or downhill?

**C.** Do the points lie close to a straight line? If so, use a ruler to draw a best-fit line.

**D.** If possible, predict how long it will take John to run a mile when he is 12.

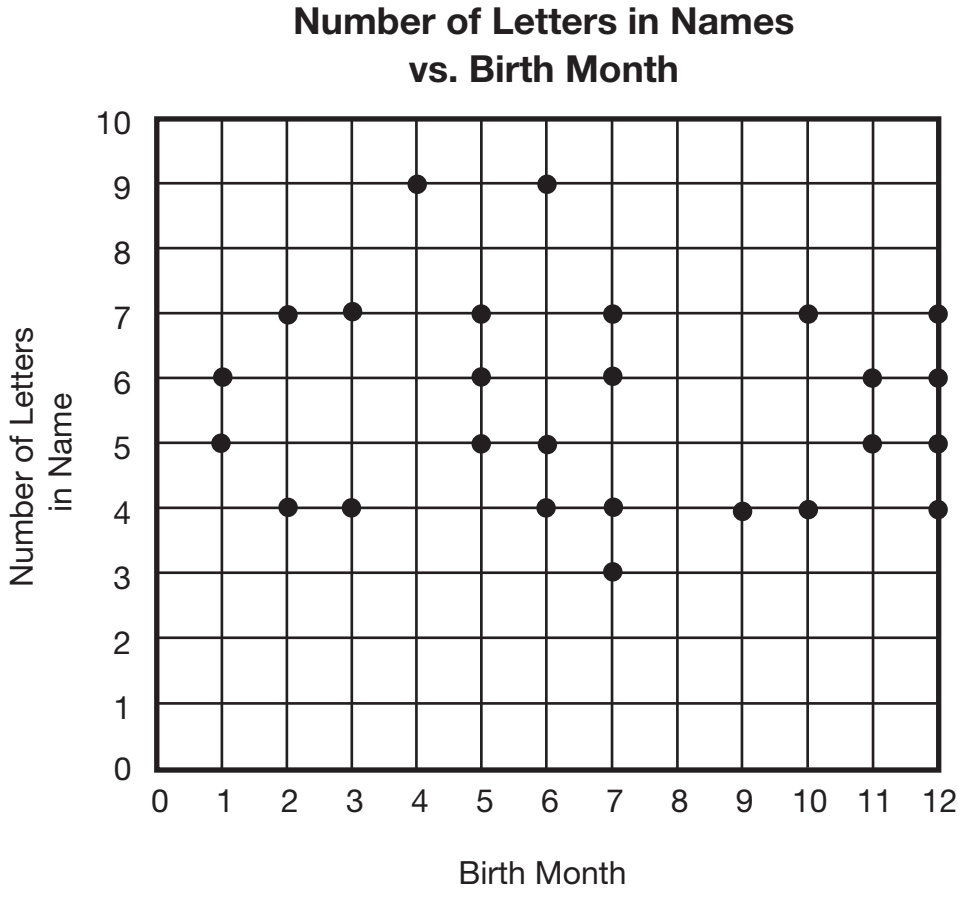
**E.** If possible, predict how long it will take John to run a mile when he is 18.

**F.** Does knowing John's age help you predict his time for running the mile? Explain.

Name _____ Date _____

**3.** A fourth-grade class recorded the month each student was born and the number of letters in each student's name. Using the data, the class made the following graph.

**A.** Describe the graph.




**B.** Do the points lie close to a straight line? If so, use a ruler to draw a best-fit line.

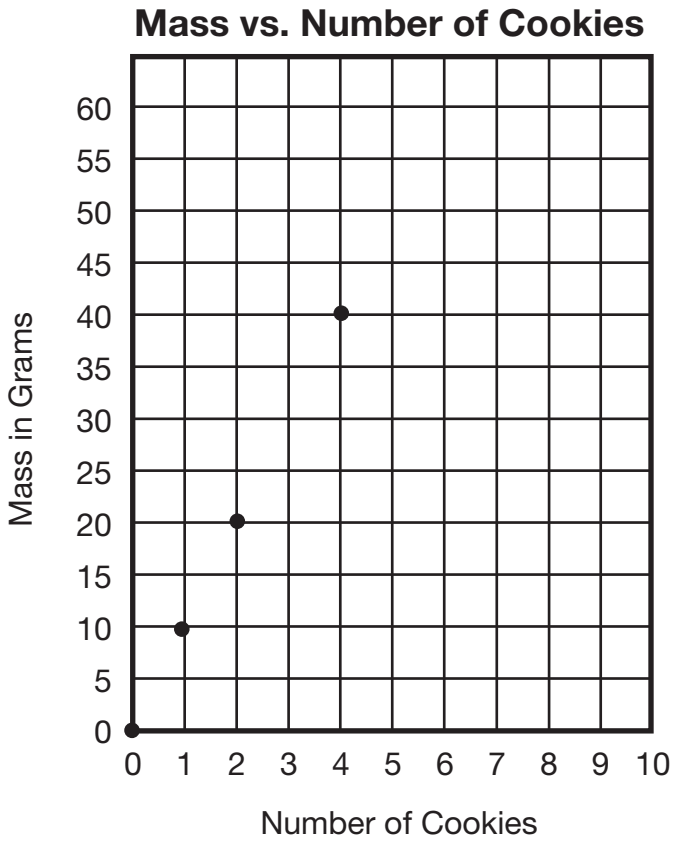
**C.** Does knowing the month a student was born help you predict the number of letters in his or her name? Explain.

**D.** If possible, predict the number of letters in a student's name if he or she was born in August (the eighth month).

Name _____ Date _____

**4.** A cookie company wants all the cookies from the factory to be the same. Here is a graph made by a cookie inspector.

**A.** Describe the graph.




**B.** Do the points lie close to a straight line? If so, use a ruler to draw a best-fit line.

**C.** If possible, predict the mass of 3 cookies. Show any work on the graph.

**D.** If possible, predict the mass of 5 cookies. Show any work on the graph.

**E.** Did you use interpolation or extrapolation to answer Question 4C?

**F.** List the ordered pairs that the cookie inspector graphed.

**G.** Look at the ordered pairs. Do you see a pattern? Describe it.

**H.** Use the pattern in the ordered pairs to predict the mass of 8 cookies.

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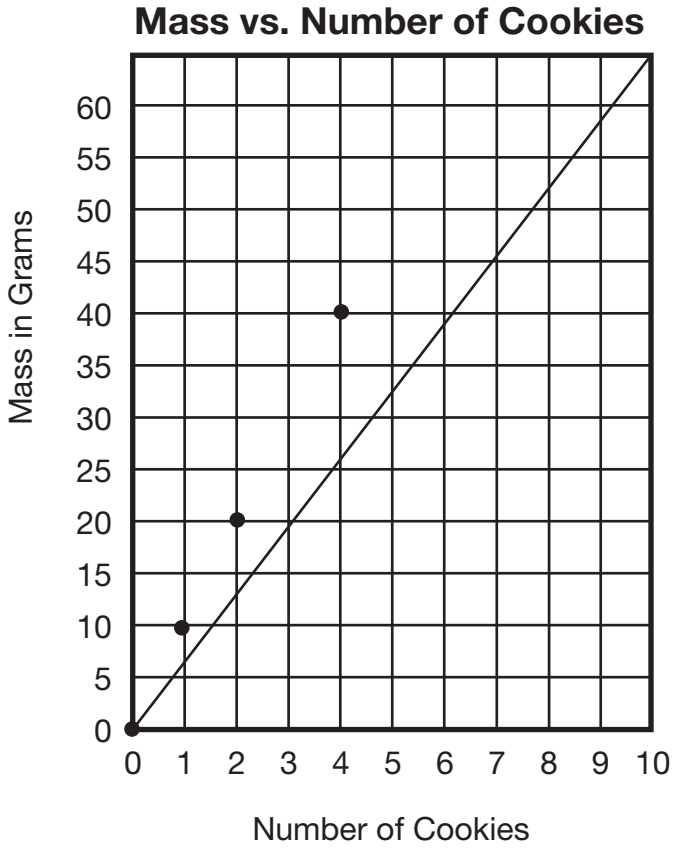
**5.** Ana drew a best-fit line for Question 4. Her line went from corner to corner.




**A.** How many points does Ana's line go through?

**B.** How many points are above her line?

**C.** How many points are below her line?

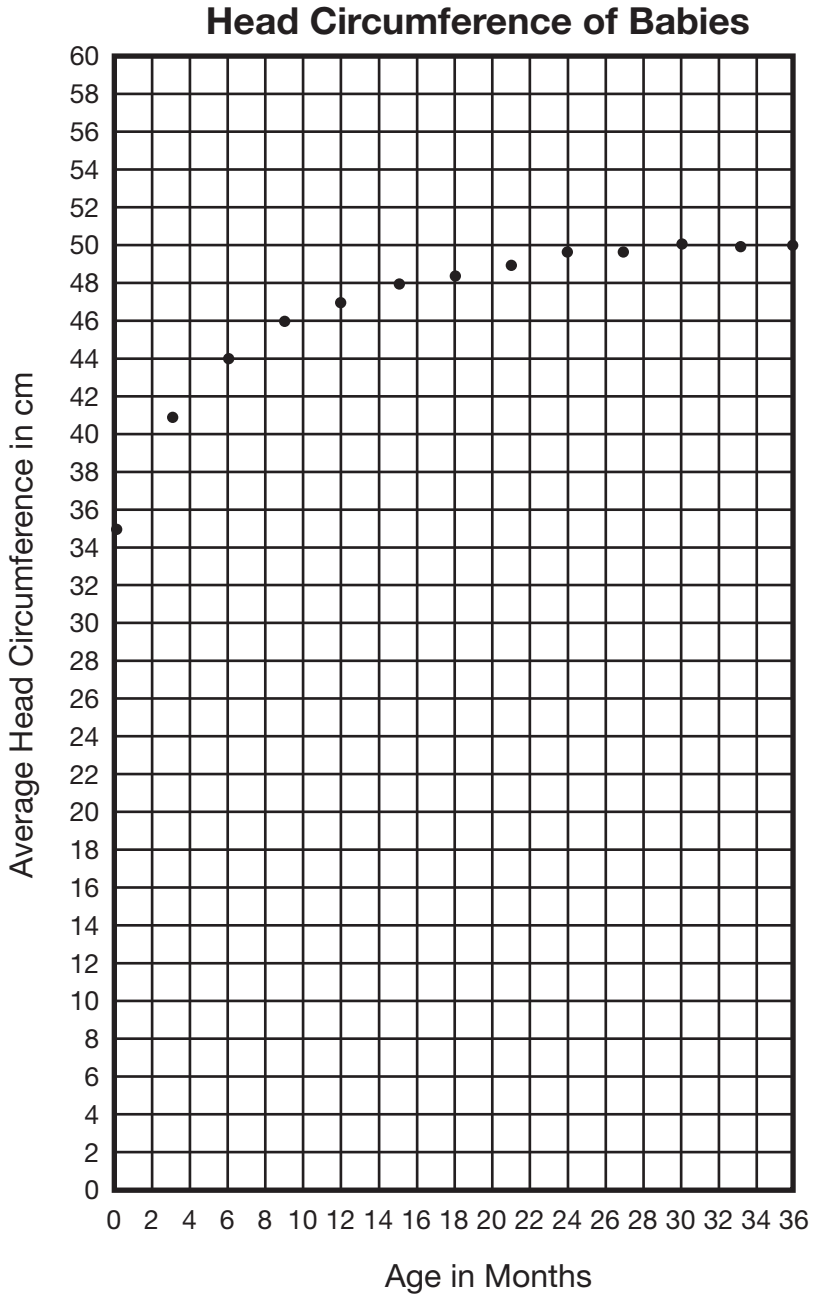
**D.** Ana predicted that 3 cookies would have a mass of 20 grams and 5 cookies would have a mass of 33 grams. Do you agree with her? What was Ana's mistake?

**E.** What would you tell Ana about how to draw a best-fit line?

Name _____ Date _____

**6.** Doctors measure the head circumference of babies to track their growth.

**A.** Describe the graph.




**B.** If the points lie close to a line, use a ruler to draw a best-fit line.

**C.** If possible, predict the head circumference of a baby who is four months old.

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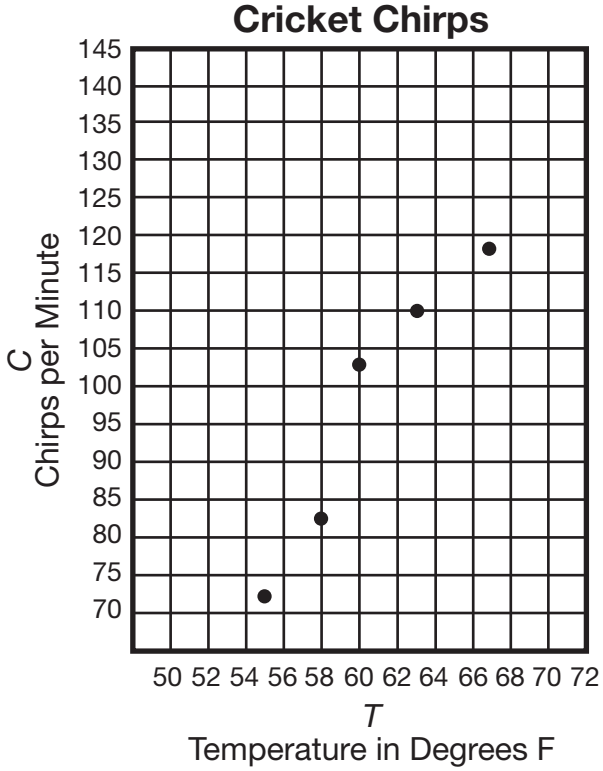
**7.** Luis counted the number of chirps made in one minute by his pet cricket over several different nights. He recorded the temperature each time he counted. Here is his data.




| *T* Temperature in Degrees F | *C* Chirps per Minute | Ordered Pairs (T, C) |
|---|---|---|
| 67 | 118 | (  ,  ) |
| 63 | | |
| | 82 | |
| | 102 | |
| 55 | 72 | (55, 72) |

**A.** Complete the table and list Luis's data as ordered pairs.

**B.** Describe the graph.

**C.** What happens to the number of chirps when the temperature goes up?

**D.** If the points lie close to a line, draw a best-fit line.

**E.** If possible, predict the number of chirps per minute when the temperature is 70 degrees.

**F.** If possible, predict the number of chirps per minute when the temperature is 56 degrees.

**G.** Did you use interpolation or extrapolation to answer Question 7E?

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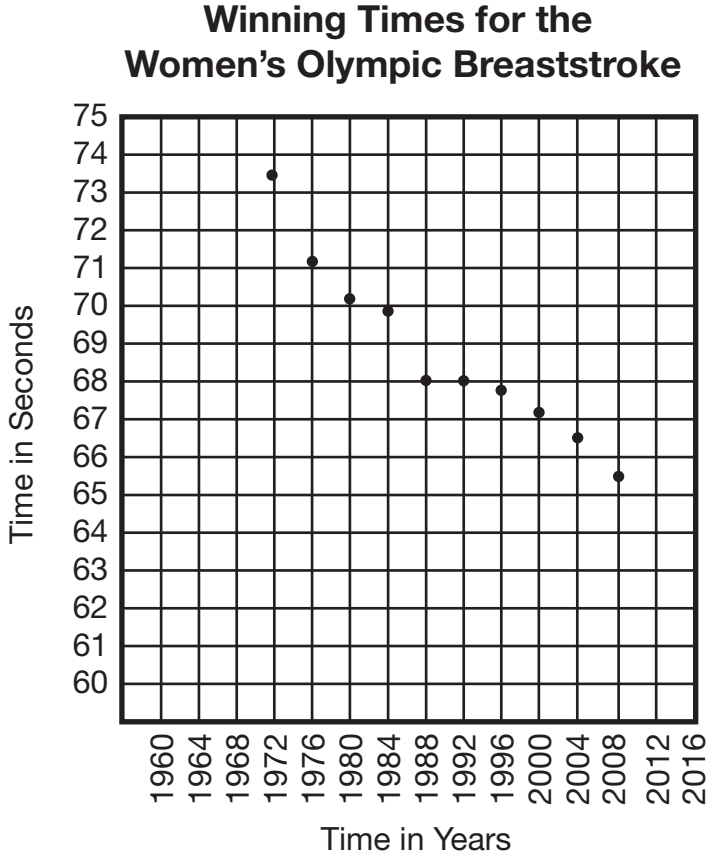
**8.** Look back at the graphs in Questions 1–7. Which graph gives the most accurate predictions? Explain your choice.

## Check-In: Question 9

**9.** The winning times for the Olympic women's 100-meter breaststroke swimming competition are shown in this graph.




**A.** Describe the graph.

**B.** If the points lie close to a line, use a ruler to draw a best-fit line.

**C.** If possible, predict the winning time in 2016.