

Student Name: _____

Ohio Achievement Tests



Mathematics

Student Test Booklet

March 2006

This test was originally administered to students in March 2006.

This publicly released material is appropriate for use by Ohio teachers in instructional settings. This test is aligned with Ohio's Academic Content Standards for Mathematics.

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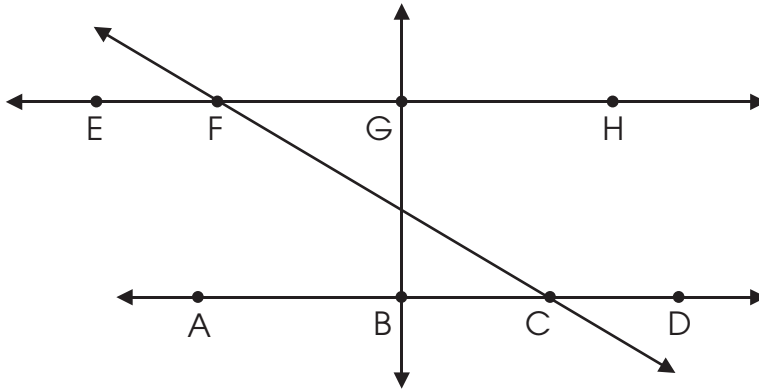
Directions:

Today you will be taking the Ohio Grade 5 Mathematics Achievement Test. Three different types of questions appear on this test: multiple choice, short answer and extended response.

There are several important things to remember:

1. Read each question carefully. Think about what is being asked. Look carefully at graphs or diagrams because they will help you understand the question.
2. You may use the blank areas of your Student Test Booklet to solve problems. You may also use the optional grid paper in the answer document to solve problems.
3. For short-answer and extended-response questions, use a pencil to write your answers neatly and clearly in the gridded space provided in the answer document. Any answers you write in the Student Test Booklet will not be scored.
4. Short-answer questions are worth two points. Extended-response questions are worth four points. Point values are printed near each question in your Student Test Booklet. The amount of gridded space provided for your answers is the same for all two- and four-point questions.
5. For multiple-choice questions, shade in the circle next to your choice in the answer document for the test question. Mark only one choice for each question. Darken completely the circles on the answer document. If you change an answer, make sure that you erase your old answer completely.
6. Do not spend too much time on one question. Go on to the next question and return to the question skipped after answering the remaining questions.
7. You may use a protractor on this test.
8. Check over your work when you are finished.

1. Four lines are drawn as shown.



Which statement appears to be true of the two lines that intersect at point G?

- A. They are rays.
 - B. They are skew.
 - C. They are parallel.
 - D. They are perpendicular.
2. Roberto had \$20. He bought a soccer ball that cost m dollars. He now has less than \$5 left.

Which inequality represents this situation?

- A. $20 - m < 5$
- B. $20 - m > 5$
- C. $m - 20 < 5$
- D. $m - 20 > 5$

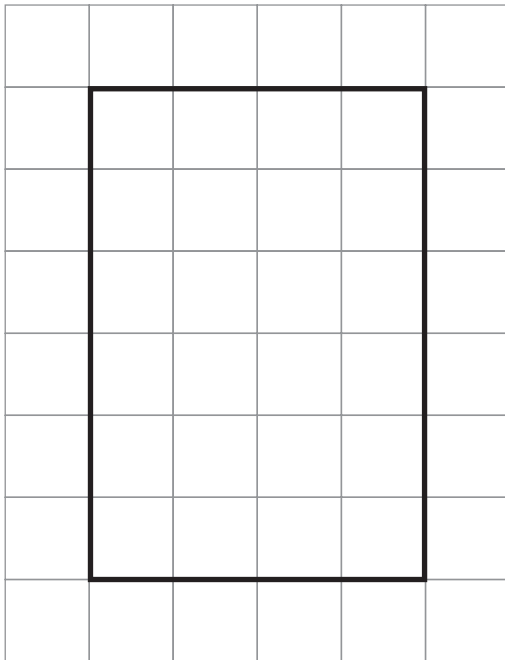


3. Ms. Benitez’s class recorded the temperature for several mornings at 9:00 a.m. The temperatures the class recorded are shown.

61°, 63°, 62°, 65°, 66°, 61°, 60°

What is the mode of the data the class collected?

- A. 60°
 - B. 61°
 - C. 62°
 - D. 65°
4. Joe is putting a low fence around all four sides of a rectangular flower bed. The flower bed is 4 feet wide and 6 feet long.



Each section of fencing is 2 feet long. How many sections of fencing will Joe need?

- A. 10 sections
- B. 20 sections
- C. 24 sections
- D. 40 sections



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5. Gregg has four shirts and three pairs of pants. His shirts are red, green, white, and yellow. His pants are navy, black and tan.

In your **Answer Document**, list all the different shirt and pants combinations that Gregg can wear. (2 points)

6. Grant does 20 sit-ups each day.

Which expression represents the total number of sit-ups that Grant will do in n days?

- A. $n + 20$
B. $n - 20$
C. $n \times 20$
D. $n \div 20$
7. Peggy sold a total of 6,198 vanilla and chocolate ice cream cones during the carnival. About half the cones she sold were vanilla.

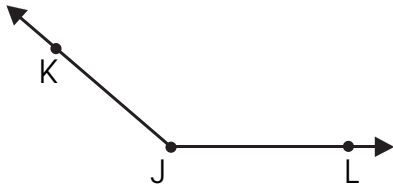
Which estimate is reasonable for the number of chocolate ice cream cones sold?

- A. 2,500
B. 3,000
C. 3,500
D. 6,000

8. Which group of numbers has the greatest median?

- A. 2, 5, 5, 5, 6
- B. 2, 3, 7, 9, 10
- C. 4, 4, 6, 6, 7
- D. 3, 5, 8, 9, 9

9. Angle KJL is shown.



Use your protractor to find the measure of angle KJL.

- A. 60°
 - B. 80°
 - C. 140°
 - D. 160°
10. Maria found the same pair of shoes on sale at three different stores. All the stores have the same original price. The first store has the shoes on sale for $\frac{1}{3}$ off. The second store has them on sale for 20% off. The third store has them on sale for one-fourth off.

In your **Answer Document**, determine which store has the best sale for the shoes. Explain your answer, using pictures, numbers or words. (2 points)

On the March 2006 Grade 5 Mathematics Achievement Test, items 11-16 are a field-test items, which are not released.



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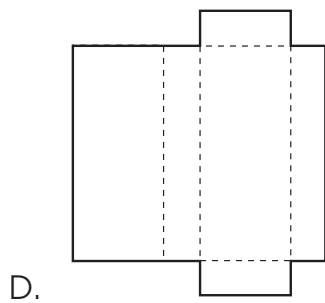
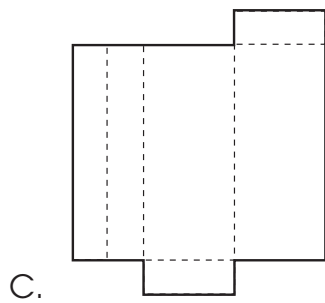
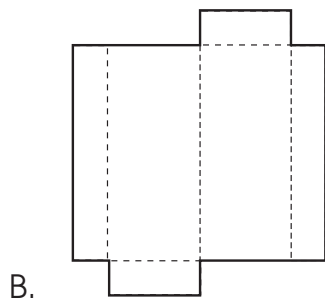
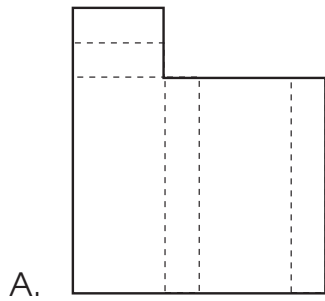
17. Janet has a box of 30 cards. There are 15 blue cards and 15 green cards in the box. Janet pulls out a card, records the color and returns the card to the box. After pulling 10 times, she has recorded 6 blue cards and 4 green cards.

Which statement describes whether this result is reasonable?

- A. It is reasonable because both 6 and 4 are close to 5.
- B. It is reasonable because 6 is more than 4.
- C. It is not reasonable because she will always get 5 blue cards and 5 green cards.
- D. It is not reasonable because she did not pick enough cards.



18. Which figure shows the net for a rectangular prism?



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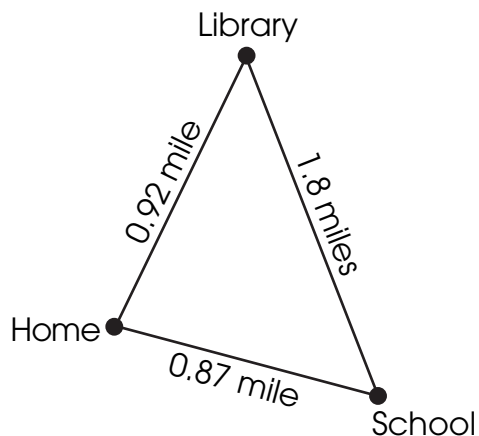
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19. Bob covered a floor with carpet.

Which unit of measure describes how much carpet he used?

- A. inches
- B. feet
- C. square feet
- D. cubic inches

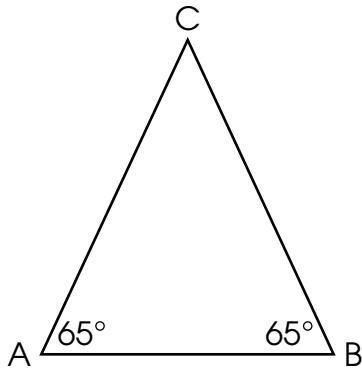
20. The diagram shows how far it is from Anna's home to her school, from her school to the library, and from the library to her home.



Each school day, Anna rides her bike from her home to her school. After school, she rides to the library and then home. On Saturday, Anna rides her bike from home to the library and back home. She does not ride her bike on Sunday. Anna's mother says that her daughter rides about 30 miles every week between her home, the school and the library.

In your **Answer Document**, use estimation to determine whether Anna's mother has made a reasonable estimate. Show or explain your work.
(4 points)

21. Triangle ABC is shown.



What is the measure of angle C?

- A. 50°
- B. 65°
- C. 90°
- D. 180°

22. Beverly writes each letter of her name on a separate index card, as shown.



She puts all the cards in a bag. She randomly pulls out one card.

What is the probability that the card is an "E"?

- A. $\frac{1}{2}$
- B. $\frac{2}{5}$
- C. $\frac{1}{7}$
- D. $\frac{2}{7}$

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23. Simplify: $9 \div 3 + 6 \times 5$

- A. 5
- B. 6
- C. 33
- D. 45

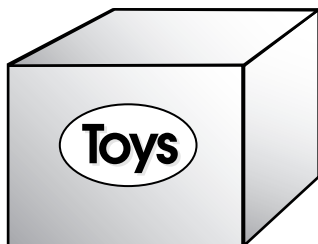
24. Amber made the input-output table shown.

Input	Output
2	12
5	27
8	42
10	52

Which rule explains how to get the output number from the input number?

- A. add 5, multiply by 2
- B. add 10
- C. multiply by 5, add 2
- D. multiply by 6

25. Justin keeps his toys in a box like the one shown.



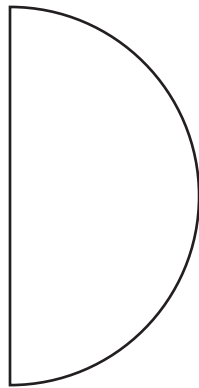
In your **Answer Document**, explain the difference between the volume and the surface area of the box. (2 points)

26. There are 2,382 paintings in an art museum. The museum has 124 rooms.

Which is a reasonable estimate for the number of paintings in each room?

- A. 10
- B. 20
- C. 30
- D. 200

27. Malcolm needed to measure the distance across a circular tablecloth. He folded the tablecloth in half as shown.



Malcolm measured the length of a folded side.

Which part of the circular tablecloth did Malcolm measure?

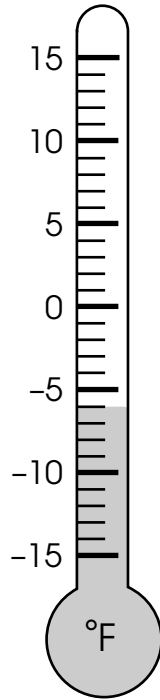
- A. center
- B. circumference
- C. diameter
- D. radius



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28. Mary checked the outside temperature.



What temperature is shown on the thermometer?

- A. -6°F
- B. -4°F
- C. 4°F
- D. 6°F

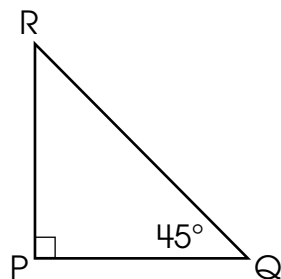
29. Mike surveys his class to find each student's favorite dessert and records his data as shown.

Desserts

Student	Favorite Dessert
Oscar	Ice Cream
Jasmine	Brownies
Ashley	Ice Cream
Marcus	Ice Cream
James	Brownies
Cody	Cookies
Jessica	Cookies
Courtney	Ice Cream
Kayla	Brownies
Taylor	Cup Cakes
Antonio	Ice Cream
Mike	Brownies

In your **Answer Document**, construct a frequency table to summarize the data. Be sure to include labels. (2 points)

30. Triangle PQR is a right triangle.



What is the measure of angle R?

- A. 30°
- B. 45°
- C. 75°
- D. 90°

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31. A pickup truck weighs 3 tons.

How many pounds does the truck weigh?

- A. 600 pounds
- B. 2,000 pounds
- C. 3,000 pounds
- D. 6,000 pounds

32. Mr. Reid wants to know which dessert the students in his class like best.

Which data would **not** be shown in a graph of desserts the students like?

- A. the price of the desserts
- B. the dessert students like best
- C. the number of students surveyed
- D. the dessert students like second best



33. Ethan rakes leaves to earn money. He uses the information in the table shown to find how long he takes to rake lawns of different sizes.

Size of Lawn (square feet)	Time to Rake (minutes)
200	40
250	50
300	60
350	70
400	80

In your **Answer Document**, write a rule that tells how the amount of time Ethan needs to rake a lawn is related to the number of square feet in the lawn.

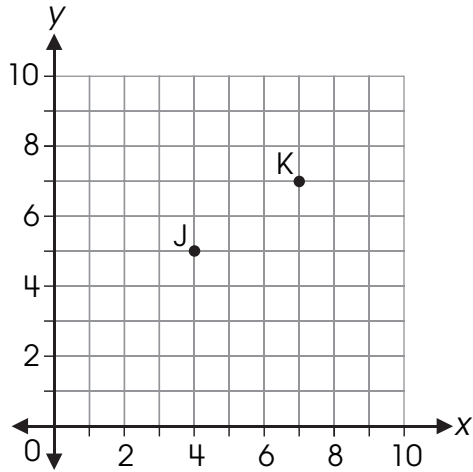
One of Ethan's neighbors has a 150-square-foot lawn. Use the table or your rule to explain how long it will take Ethan to rake this lawn. Show or explain your work.

Use the table or your rule to tell what size lawn Ethan can rake in 65 minutes. Show or explain your work. (4 points)

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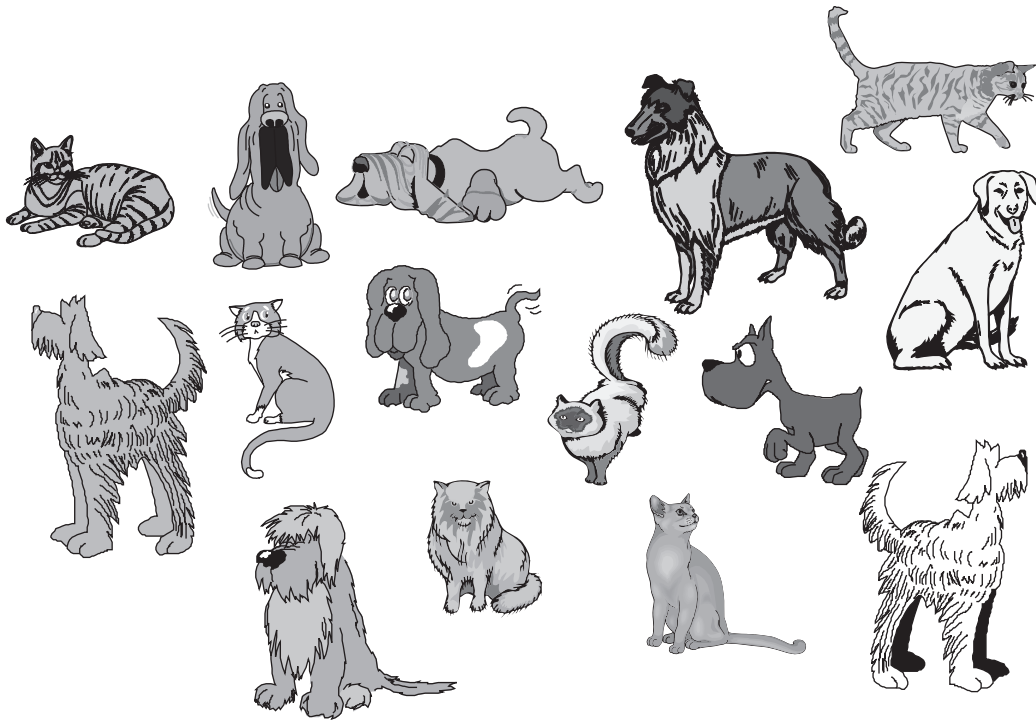
34. Point J and point K are shown on the grid.



What is the direction from point J to point K along the grid lines?

- A. 3 units right and 2 units up
- B. 3 units right and 3 units up
- C. 4 units right and 3 units up
- D. 4 units right and 2 units up

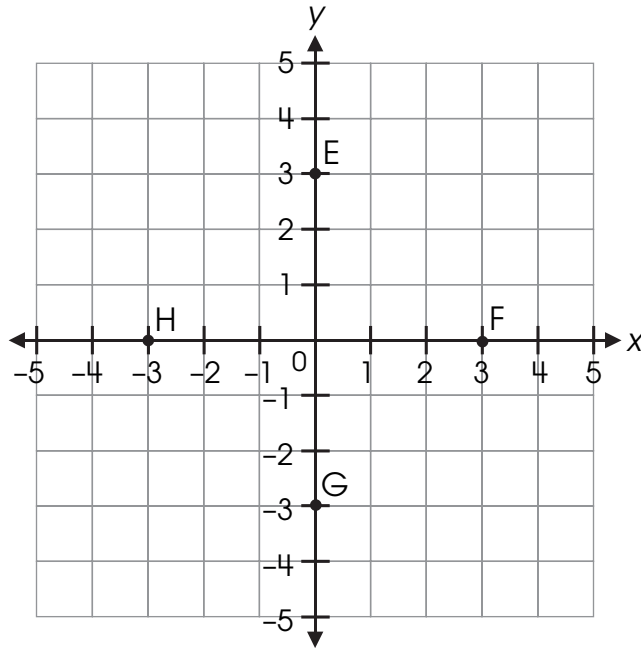
35. John saw 6 cats and 9 dogs in the veterinarian's waiting room.



What is the ratio of cats to dogs?

- A. 6:9
- B. 6:15
- C. 9:6
- D. 9:15

36. Four points are shown on the coordinate plane.



Which point is located at $(0, -3)$?

- A. E
 - B. F
 - C. G
 - D. H
37. Russell bought $2\frac{1}{8}$ pounds of turkey and $3\frac{3}{4}$ pounds of roast beef to make sandwiches.

Which estimate is reasonable for the amount of meat he bought?

- A. 4 pounds
- B. 5 pounds
- C. 6 pounds
- D. 7 pounds

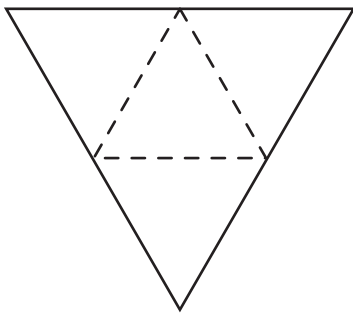
38. Peter’s goal is to read 5 hours every school week. He reads every evening during the school week and records his time in the chart shown.

Peter’s Reading Time

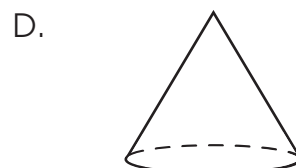
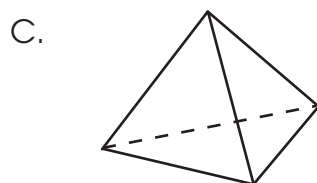
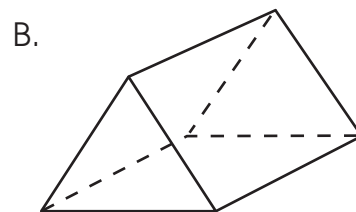
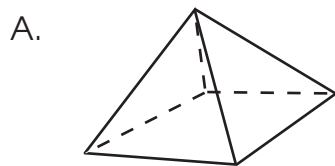
Day	Time Read
Monday	30 minutes
Tuesday	1 hour 15 minutes
Wednesday	1 hour 5 minutes
Thursday	40 minutes
Friday	?

In your **Answer Document**, determine how much time Peter should read on Friday to meet his goal. Show or explain how you found your answer. (2 points)

39. A net of a three-dimensional shape is shown.



Which three-dimensional shape can be made from the net?



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40. Marco is simplifying fractions.

Which fraction should he use to simplify $\frac{9}{12}$ to lowest terms?

A. $\frac{2}{2}$

B. $\frac{3}{3}$

C. $\frac{9}{9}$

D. $\frac{12}{12}$

41. Ryan is painting faces at the fair. It takes him 10 minutes to set up his materials. Each face takes 6 minutes to paint. Ryan wants to know how many faces (f) he can paint in 60 minutes.

Which equation represents this situation?

A. $6f + 10 = 60$

B. $10f + 6 = 60$

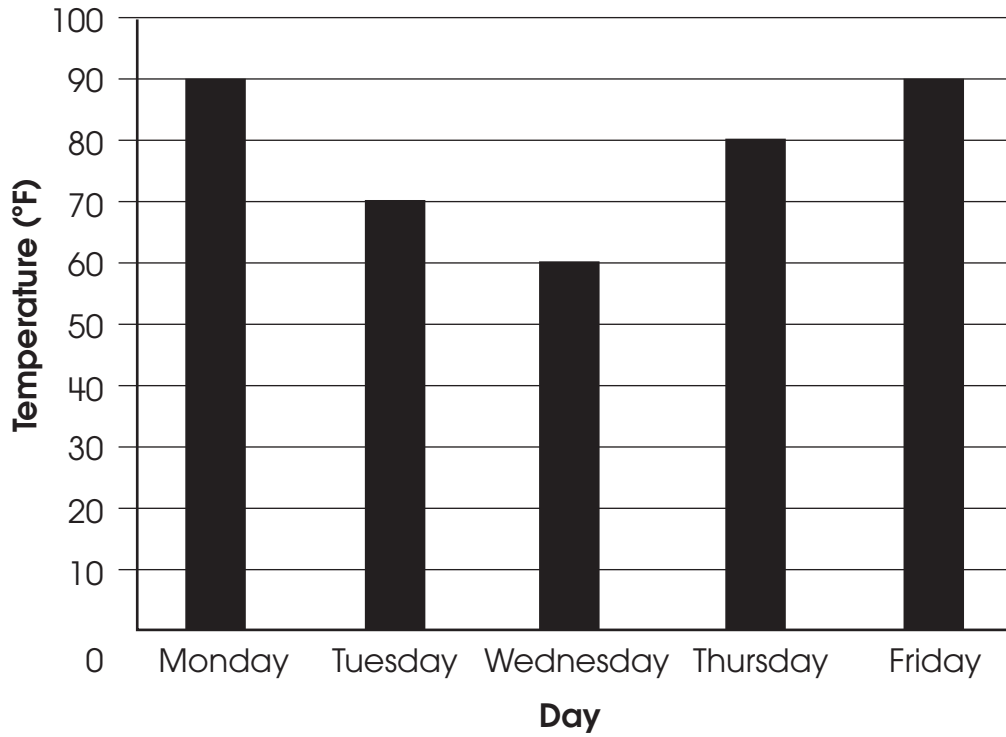
C. $6f - 10 = 60$

D. $10f - 6 = 60$

42. In your **Answer Document**, draw an obtuse angle. Use your protractor to give the measure of the obtuse angle. (2 points)

43. This graph shows the high temperatures over five days in one week.

High Temperatures



What is the range of the temperatures?

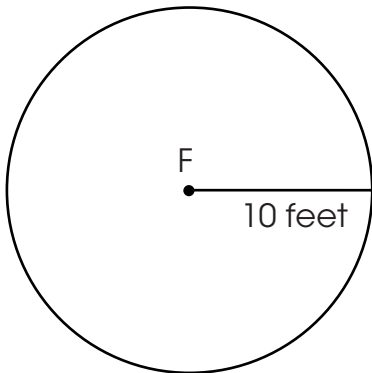
- A. 0 degrees
- B. 20 degrees
- C. 30 degrees
- D. 90 degrees



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44. Point F is the center of the circle shown.



What is the diameter of this circle?

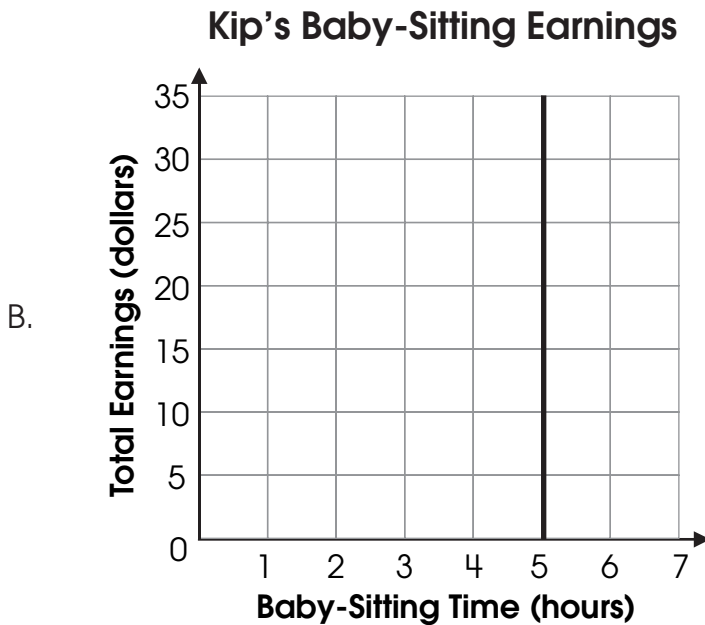
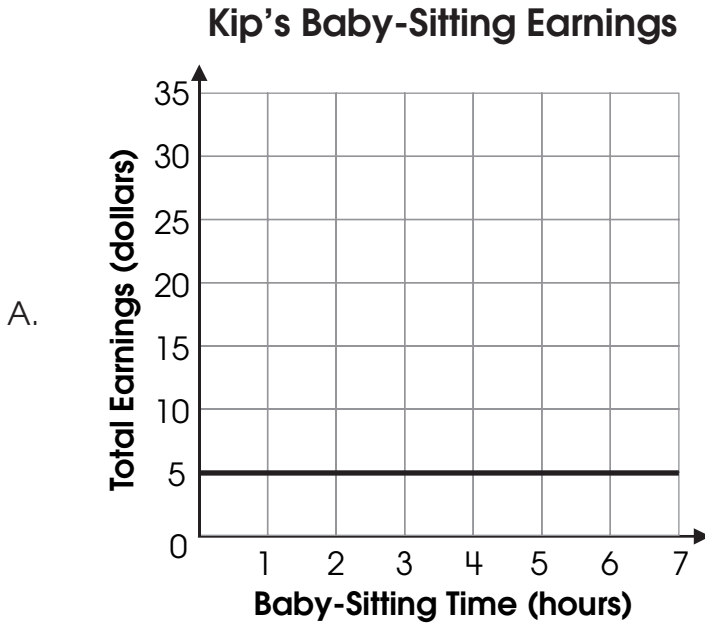
- A. 10 feet
- B. 20 feet
- C. 30 feet
- D. 100 feet

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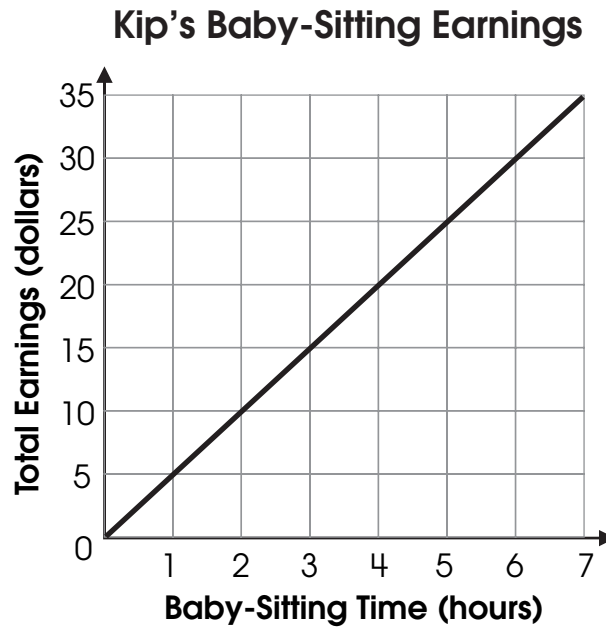
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45. Kip earns \$5 an hour baby-sitting.

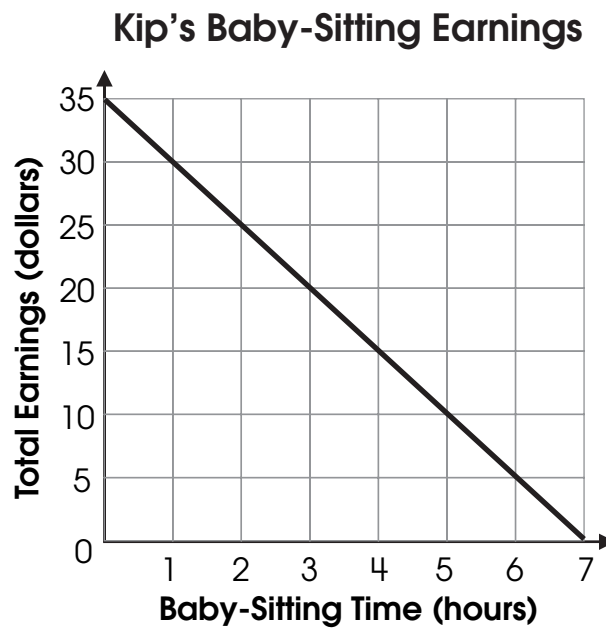
Which graph represents the amount of money he earns over time?



C.



D.



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46. Shelly's photo album has 6 sections. Each section has 16 pages. Each page has 5 pictures. To find the total number of pictures in the album, Shelly needs to multiply $6 \times 16 \times 5$.

Which other expression represents the total number of pictures in the album?

- A. $(6 \times 16) + (6 \times 5)$
- B. $(6 + 16) + 5$
- C. $(6 + 5) + (16 + 5)$
- D. $6 \times 5 \times 16$

