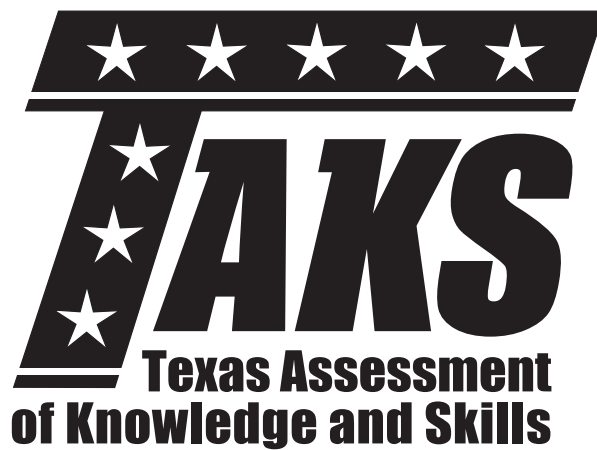


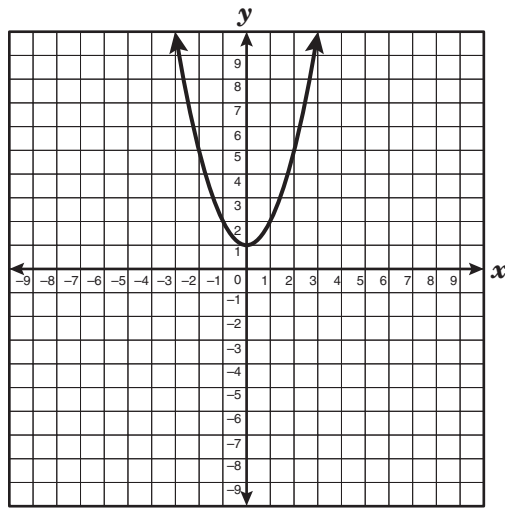
STUDENT NAME \_\_\_\_\_



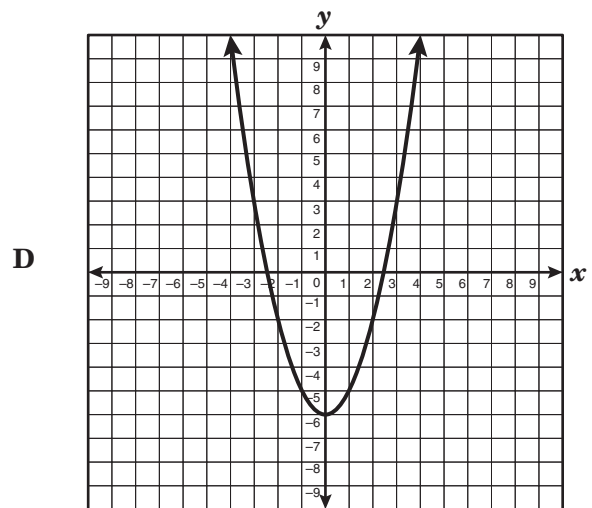
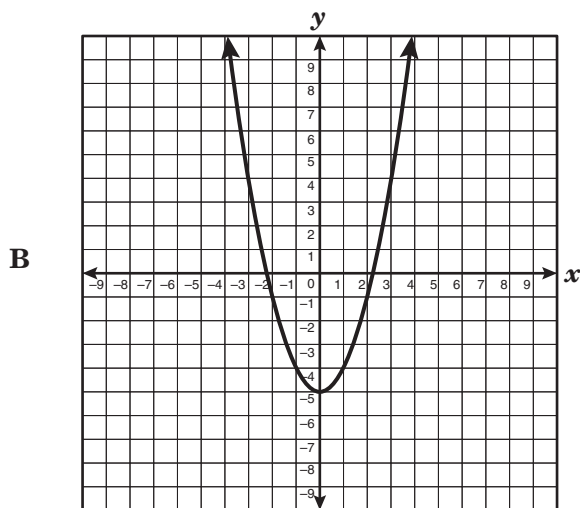
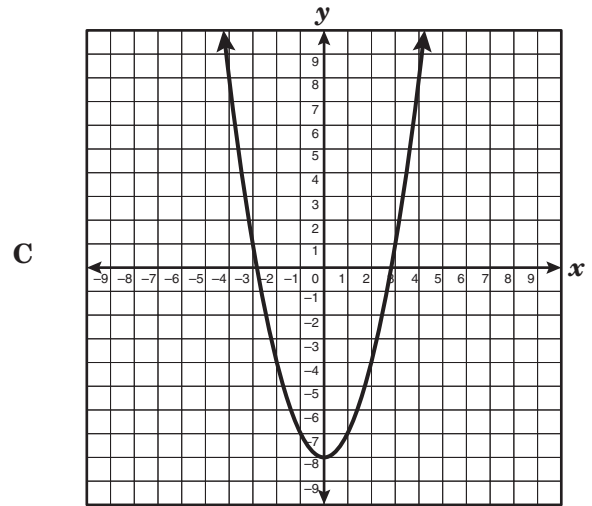
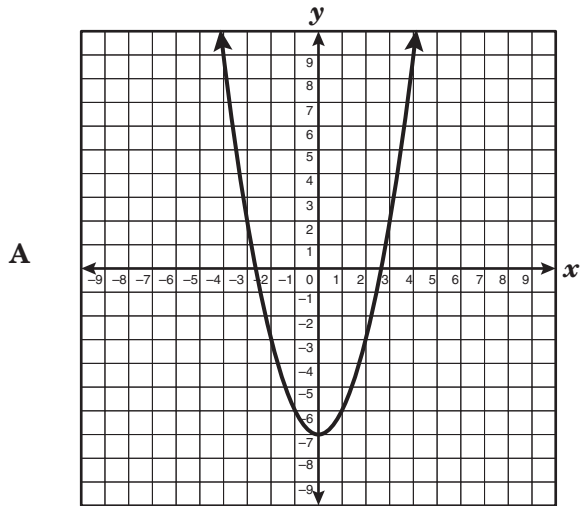
**GRADE 9  
READING  
MATHEMATICS**

**Administered Spring 2006**

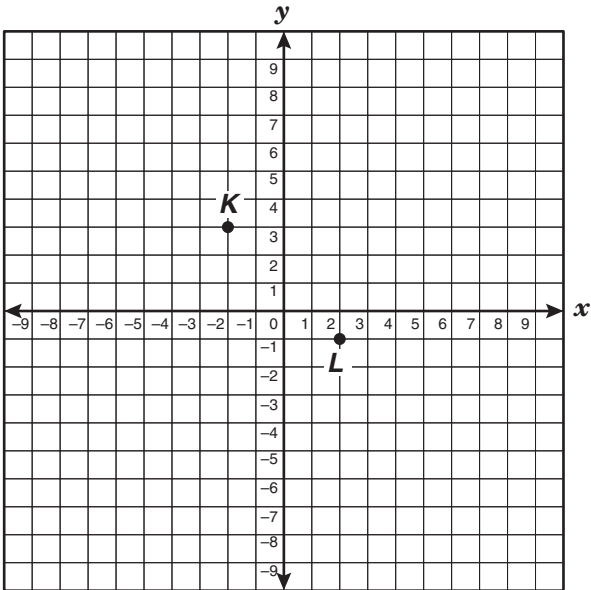
1 The graph of a function is shown below.



If the graph is translated 7 units down, which of the following best represents the resulting graph?



- 2 Points  $K$  and  $L$  are shown on the grid below.



If point  $K$  is the midpoint of  $\overline{JL}$ , what are the coordinates of endpoint  $J$ ?

- F  $(6, -5)$
- G  $(-6, 7)$
- H  $(0, 1)$
- J  $(-4, 5)$

- 3 If  $a < b$  and  $b = c$ , which statement must be true?

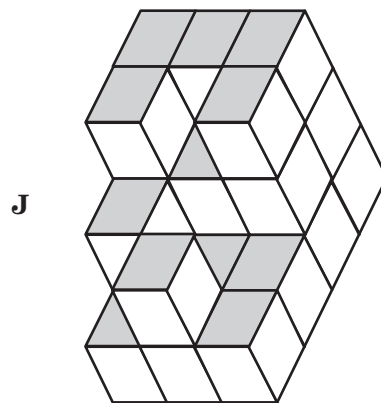
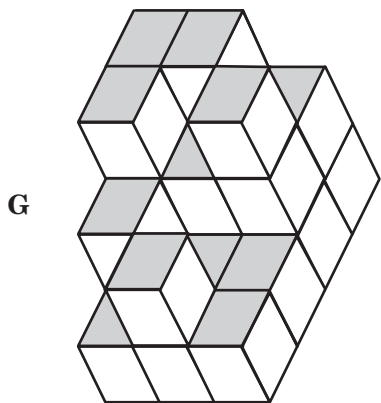
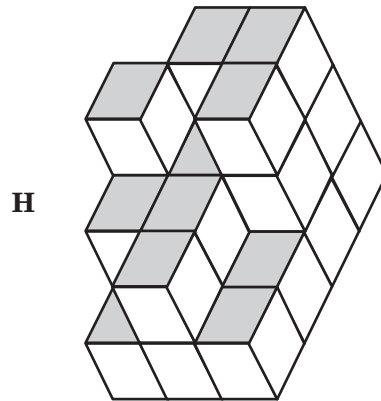
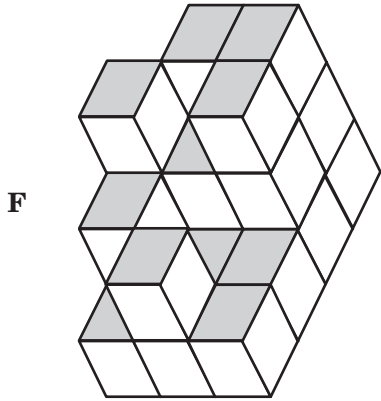
- A The values of  $a$ ,  $b$ , and  $c$  are positive.
- B The values of  $a$ ,  $b$ , and  $c$  are negative.
- C The value of  $a$  is less than the value of  $c$ .
- D The value of  $a$  is greater than the value of  $c$ .

- 4 The drawing below shows both the top view of a solid structure built with identical cubes as well as the number of cubes in each column of the structure.

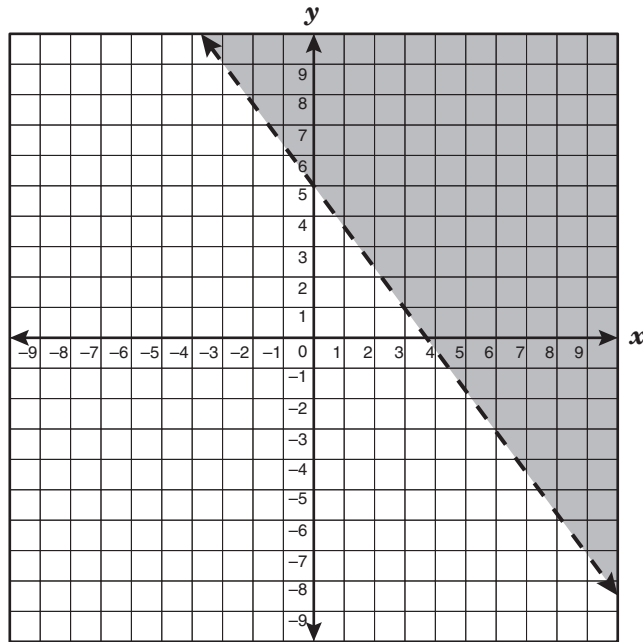
2	3	3
3	2	3
2	1	1
1	2	1

Front

Which 3-dimensional view best represents the same structure?



5 Which inequality best describes the graph shown below?



A  $y > -\frac{3}{4}x + 5$

B  $y < -\frac{4}{3}x + 5$

C  $y < -\frac{3}{4}x + 5$

D  $y > -\frac{4}{3}x + 5$

6 Ronald wants to buy a shirt that is on sale for 15% off the regular price. The regular price of the shirt is  $p$  dollars. Which expression represents the sale price of the shirt?

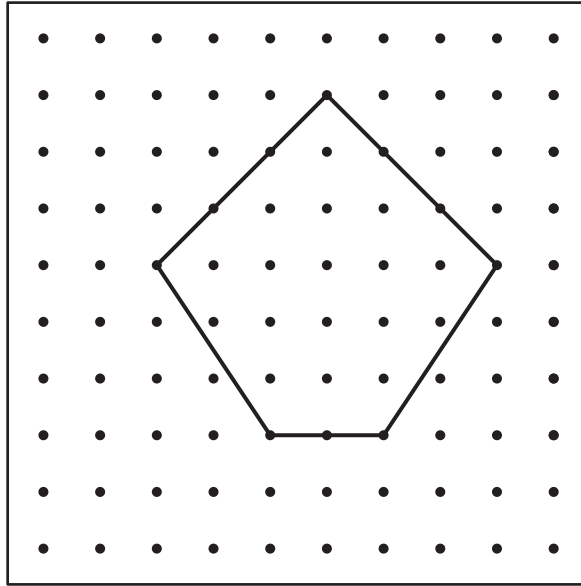
F  $p - 0.15p$

G  $p + 0.15p$

H  $p - 15p$

J  $0.15p$

- 7 The horizontal distance and the vertical distance between the pegs on the geoboard shown below each represent 1 unit.



Which is closest to the area of the polygon modeled on the geoboard?

- A 34 units<sup>2</sup>
- B 27 units<sup>2</sup>
- C 21 units<sup>2</sup>
- D 17 units<sup>2</sup>

8 Olga plans to take a trip from her house in San Marcos, Texas, to a friend's house in Zapata, Texas. She measured the distance between the two places on a map and found it to be 8 inches. If the scale on the map is  $\frac{1}{2}$  inch represents 14 miles, which is closest to the actual distance in miles between the two places?

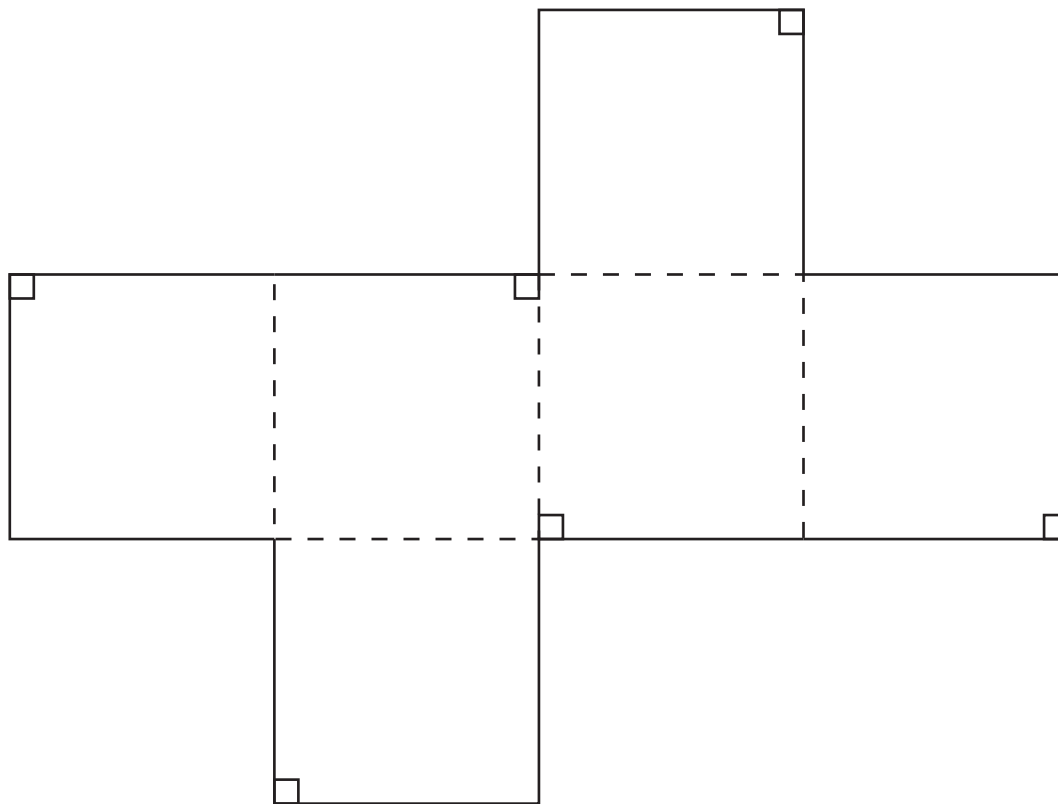
F 112 mi

G 224 mi

H 56 mi

J 44 mi

- 9 The net of a cube is shown below. Use the ruler on the Mathematics Chart to measure the dimensions of the cube to the nearest tenth of a centimeter.

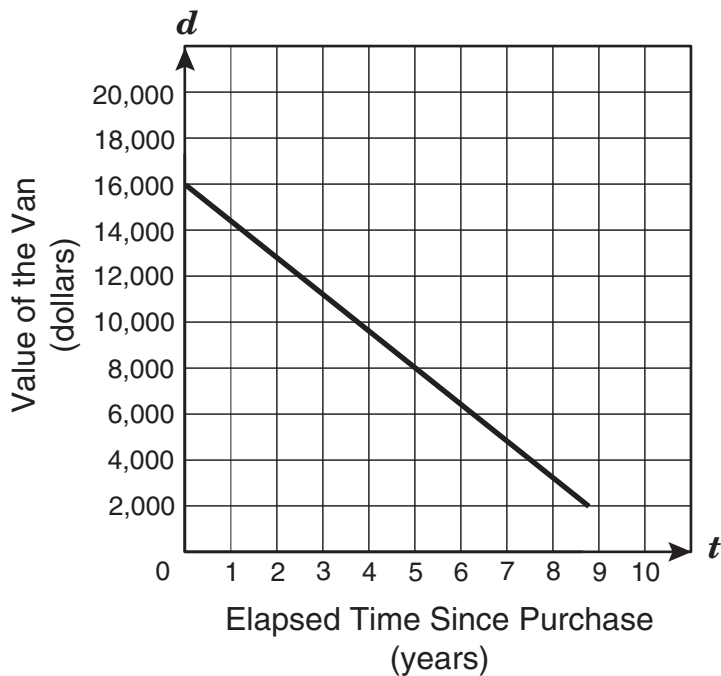


Which is closest to the total surface area of the cube represented by this net?

- A  $74 \text{ cm}^2$   
B  $11 \text{ cm}^2$   
C  $43 \text{ cm}^2$   
D  $12 \text{ cm}^2$
- 
- 10 If  $(x, -3.2)$  is a solution to the equation  $4x = 5y - 17$ , what is the value of  $x$ ?
- F 0.84  
G 0.25  
H  $-5.96$   
J  $-8.25$



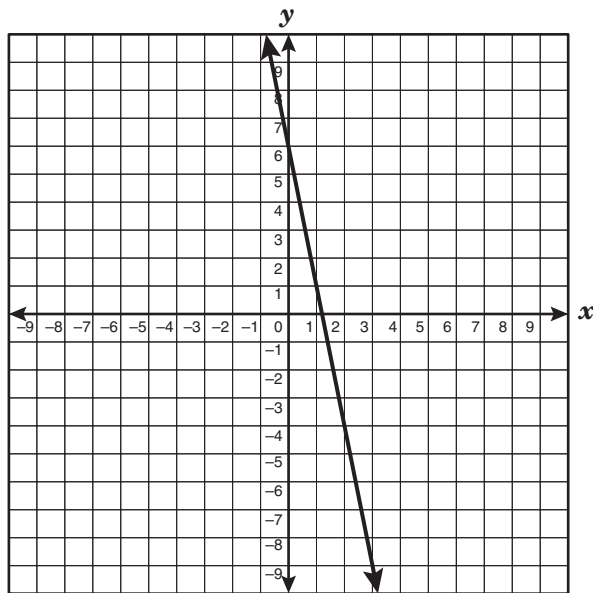
- 11 A small business purchased a van to handle its delivery orders. The graph below shows the value of this van over a period of time.



Which of the following best describes this situation?

- A The van was purchased for \$1,600.
- B The van decreases in value by \$1,600 per year.
- C The van increases in value by \$1,600 per year.
- D The van has no value after 5 years.

- 12 The graph of a linear function is shown on the coordinate grid below.



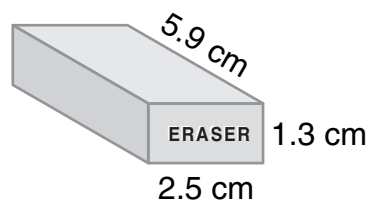
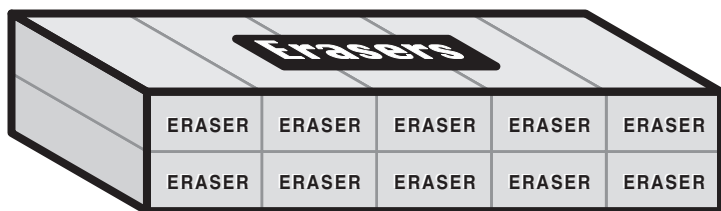
If the  $y$ -intercept is changed to  $(0, 5)$  and the slope becomes  $-4$ , which statement best describes the relationship between the two lines when they are graphed on the same coordinate grid?

- F The  $y$ -intercepts are 1 unit apart, and the lines are parallel.
- G The  $y$ -intercepts are 1 unit apart, and the lines intersect at  $(1, 1)$ .
- H The  $y$ -intercepts are 1 unit apart, and the lines are perpendicular.
- J The  $y$ -intercepts are 1 unit apart, and the lines intersect at  $(1, 0)$ .

- 13 The astronomy club rented a bus to visit the planetarium. The club rented the bus at a rate of \$24.95 per day plus \$0.45 per mile driven over 50 miles. If the astronomy club rented the bus for 1 day, what additional information is needed to determine the total cost of renting the bus?

- A The total number of students in the astronomy club
- B The number of hours the bus was driven each day
- C The number of days the bus was rented
- D The total number of miles the bus was driven

- 14 Mrs. Lee bought a small rectangular box that contains 10 tightly packaged erasers shaped like rectangular prisms, as shown below.



What is the approximate volume in cubic centimeters of this rectangular box?

- F  $19 \text{ cm}^3$
- G  $97 \text{ cm}^3$
- H  $192 \text{ cm}^3$
- J  $513 \text{ cm}^3$

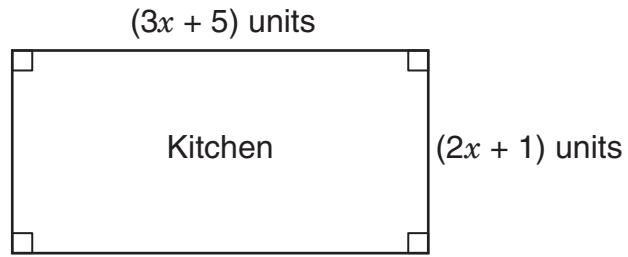
- 15 The table below shows various values for  $x$  and  $y$ .

$x$	$y$
-6	23
-2	11
7	-16
11	-28

Which equation best describes the relationship between  $x$  and  $y$ ?

- A  $y = -3x + 5$
- B  $y = -5x - 7$
- C  $y = -x + 17$
- D  $y = 3x + 41$

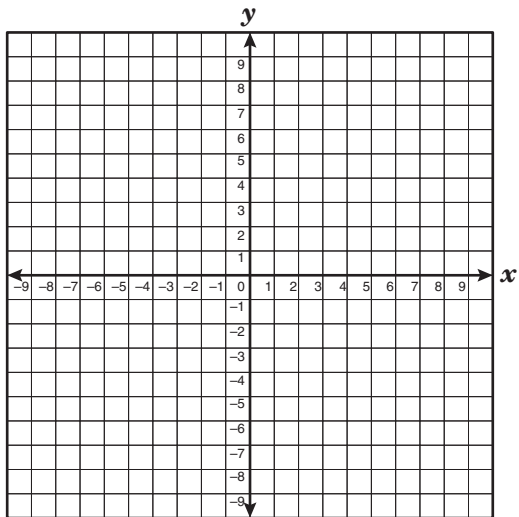
- 16 Tammy drew a floor plan for her kitchen, as shown below.



Which expression represents the area of Tammy's kitchen floor in square units?

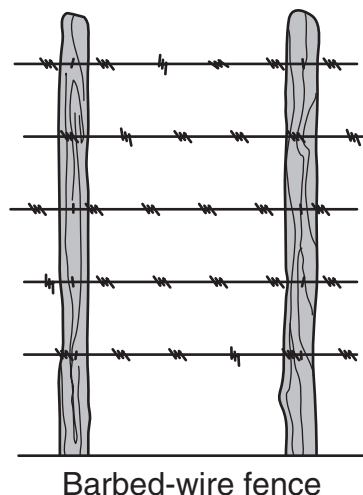
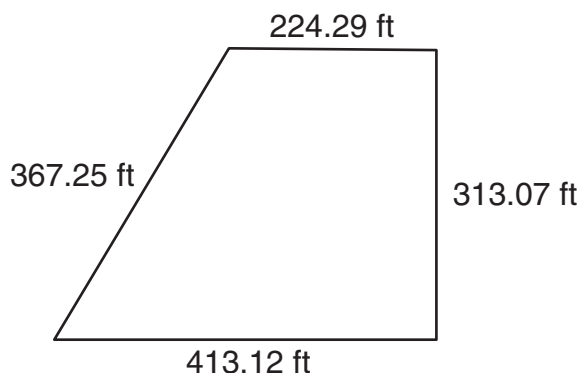
- F  $6x^2 + 30x + 5$
- G  $6x^2 + 13x + 5$
- H  $10x + 12$
- J  $5x + 6$

- 17 What is the slope of the line that contains the coordinate points  $(8, -3)$  and  $(-2, 7)$ ?



- A  $-1$
- B  $-\frac{9}{11}$
- C  $-\frac{5}{3}$
- D  $-\frac{2}{5}$

- 18 Mr. Rivera wants to build a barbed-wire fence containing 5 rows of barbed wire around the irregularly shaped area shown in the drawing below.



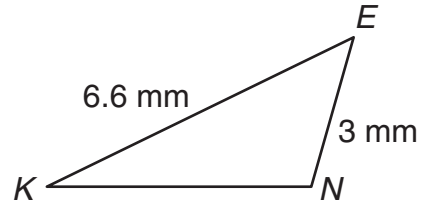
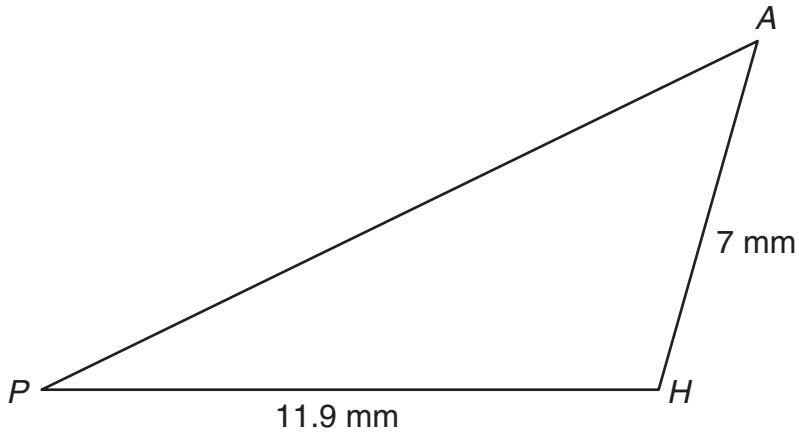
Mr. Rivera wants to purchase rolls of barbed wire that contain 1380 linear feet of wire per roll and purchase an extra 500 linear feet of wire for a gate for the fence. Which of the following is a correct method for Mr. Rivera to calculate the total number of rolls of barbed wire he will need to purchase?

- F Determine the area of the property, multiply by 5, and then divide by the sum of 1380 and 500
- G Determine the perimeter of the property, multiply by 5, add 500, and then divide by 1380
- H Determine the area of the property, multiply by 5, add 500, and then divide by 1380
- J Determine the perimeter of the property, multiply by 5, and then divide by the sum of 1380 and 500

- 19 Which of the following ordered pairs is the  $x$ -intercept or the  $y$ -intercept of the function  $2x - y = 8$ ?

- A (8, 0)
- B (0, 4)
- C (4, 0)
- D (0, 8)

20  $\triangle AHP \sim \triangle ENK$  as shown below.



Which scale factor was used to transform  $\triangle AHP$  to  $\triangle ENK$ ?

F  $\frac{10}{17}$

G  $\frac{3}{7}$

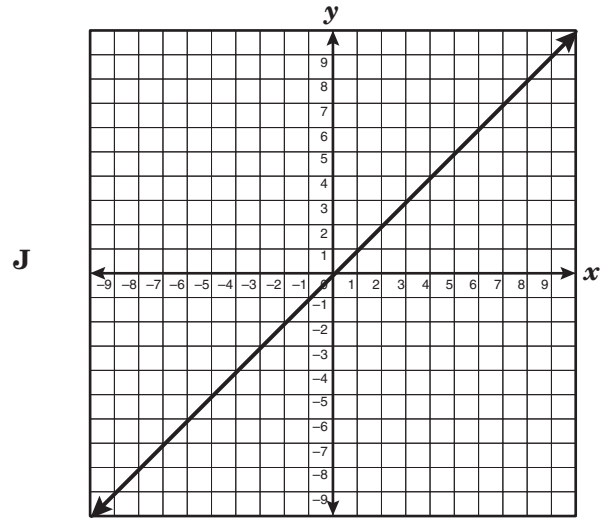
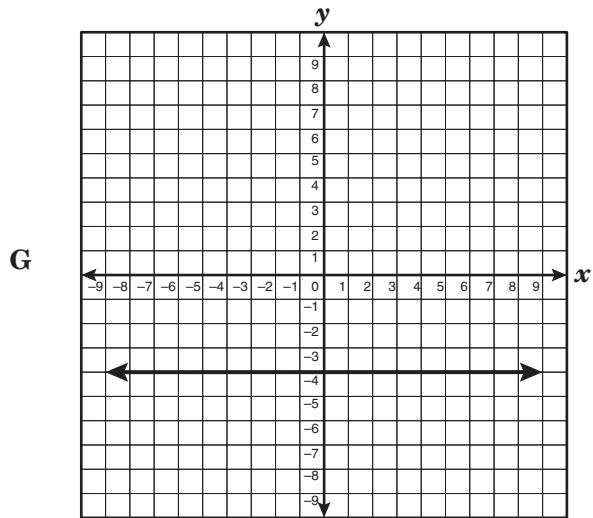
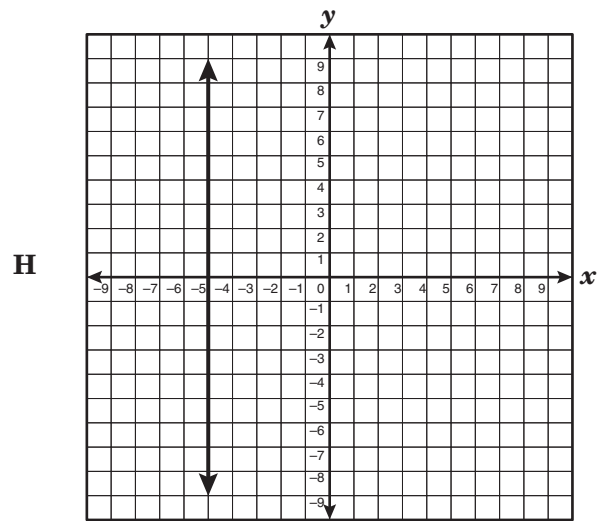
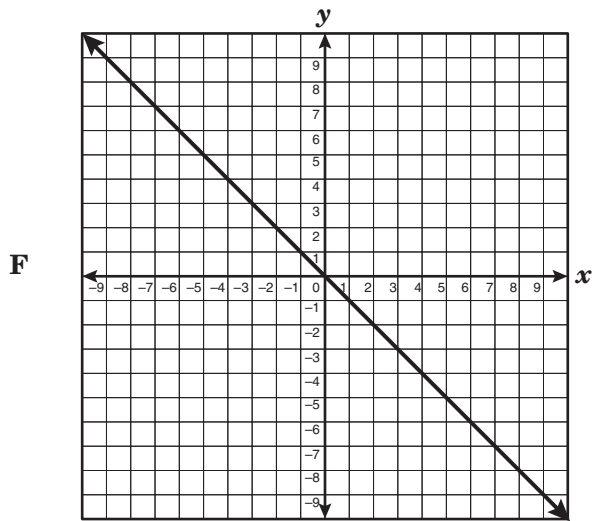
H  $\frac{11}{20}$

J  $\frac{1}{4}$

21 If a wheel spins at a rate of 36 revolutions per minute, how many revolutions per hour does the wheel spin?

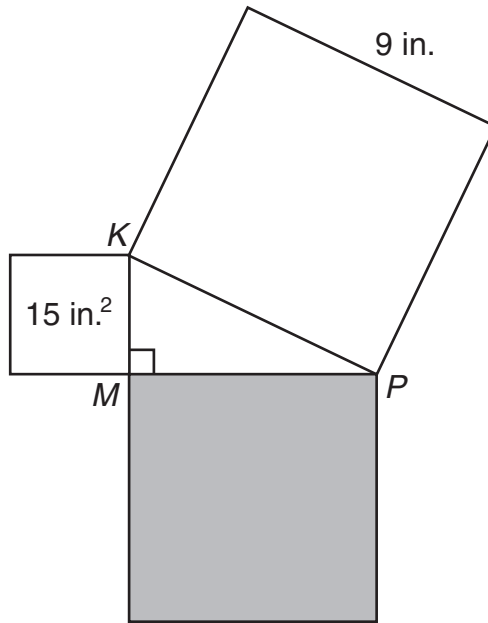
Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

22 Which graph below best represents the linear parent function?





23 Look at the drawing shown below.



If  $\triangle KMP$  is a right triangle formed by the placement of 3 squares, what is the area of the shaded square?

- A  $135 \text{ in.}^2$
- B  $24 \text{ in.}^2$
- C  $66 \text{ in.}^2$
- D  $81 \text{ in.}^2$

**24** The integers 1881, 353, 2002, and 787 are palindrome integers. Which of the following is also a palindrome integer?

- F** 1961
- G** 828
- H** 2525
- J** 783

**25** In many parades, flowers are used to decorate the floats. The table below shows the number of flowers used in each row of a parade float.

Row Number, $r$	Number of Flowers, $n$
1	54
2	58
3	62
4	66

Which equation best describes these data?

- A**  $n = 2r + 52$
- B**  $n = r + 54$
- C**  $n = 4r + 50$
- D**  $n = 4r + 54$

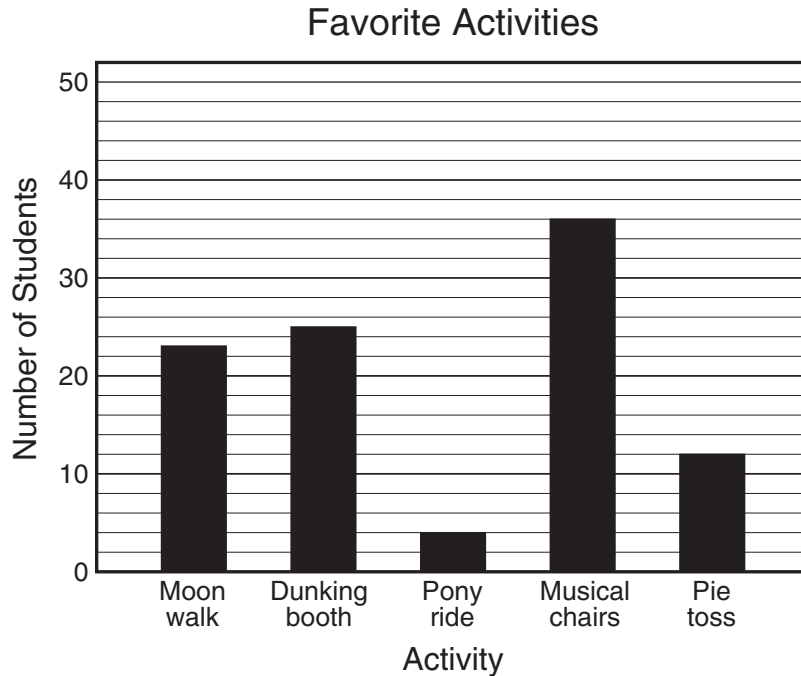
**26** If the dimensions of a rectangle are doubled, which of the following best describes an effect on the rectangle?

- F** The new area will be 2 times as large as the original area.
- G** The new area will be 8 times as large as the original area.
- H** The new perimeter will be 4 times as large as the original perimeter.
- J** The new perimeter will be 2 times as large as the original perimeter.

**27** Harris has \$20.92 to spend on video-game rentals at a local video store. The store charges \$3.95 per video-game rental plus an 8.125% tax. What is the maximum number of video games that Harris can rent?

- A** 5
- B** 4
- C** 6
- D** 3

- 28 When Memorial Elementary held its annual spring festival, Benjamin surveyed 100 students to see which activity they preferred. The graph below shows the results of Benjamin's survey.



Which of the following statements is supported by these data?

- F Close to half the students surveyed preferred either the moon walk or the dunking booth.
- G More than 25% of the students surveyed preferred the pony ride or the pie toss.
- H The ratio of students who preferred musical chairs to the pie toss was 1:3.
- J More students preferred musical chairs than preferred all the other activities combined.

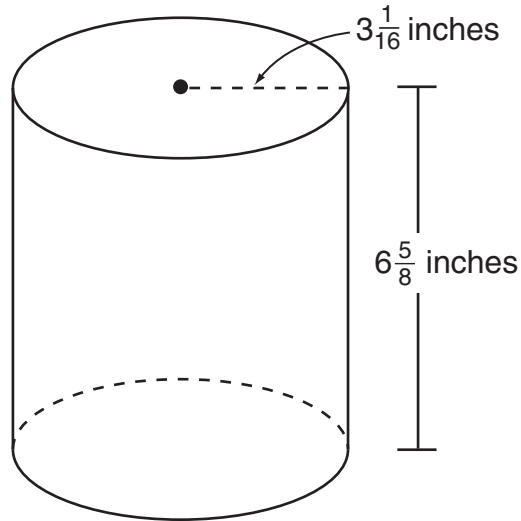
- 29 Ms. Díaz asked each of her 27 statistics students to write down an integer from 1 to 10. To determine the most common number the students picked, which measure of central tendency should Ms. Díaz use?

- A Mode
- B Mean
- C Median
- D Range

- 30 Mr. Ross is purchasing a table and chairs for \$1350, including tax and interest. He will pay for the furniture with monthly payments of \$75. If Mr. Ross has made  $m$  payments, which equation best describes  $r$ , the amount of the remaining balance?

- F  $r = (1350 - 75)m$
- G  $r = 75m + 1350$
- H  $r = 1350 - 75m$
- J  $r = 75m - 1350$

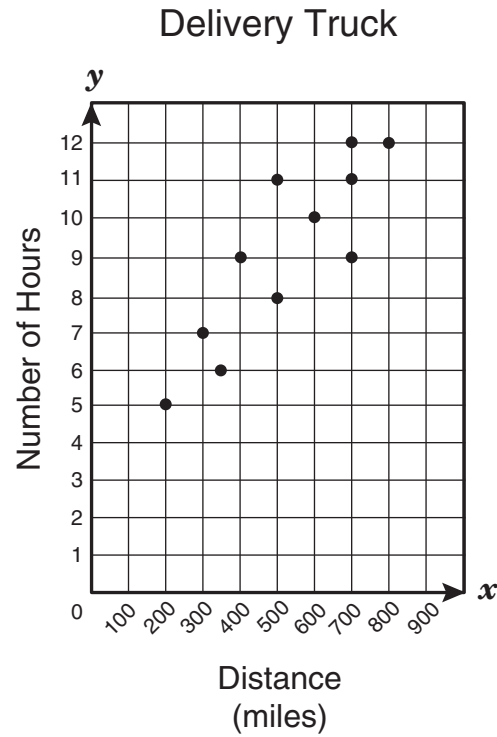
- 31 The student council members are making decorative labels to cover 20 identical empty coffee cans for a charity drive. Each label will cover the entire lateral surface area of a can.



Which is closest to the lateral surface area of a single coffee can?

- A 186 in.<sup>2</sup>  
B 157 in.<sup>2</sup>  
C 195 in.<sup>2</sup>  
D 128 in.<sup>2</sup>
- 
- 32 The perimeter of a rectangular wooden deck is 90 feet. The deck's length,  $l$ , is 5 feet less than 4 times its width,  $w$ . Which system of linear equations can be used to determine the dimensions, in feet, of the wooden deck?
- F  $2l + 2w = 90$   
 $l = 5 - 4w$
- G  $2l + 2w = 90$   
 $l = 5w - 4$
- H  $2l + 2w = 90$   
 $l = 4 - 5w$
- J  $2l + 2w = 90$   
 $l = 4w - 5$

- 33 The graph below shows the relationship between the distance in miles a delivery truck traveled and the number of hours each delivery took.

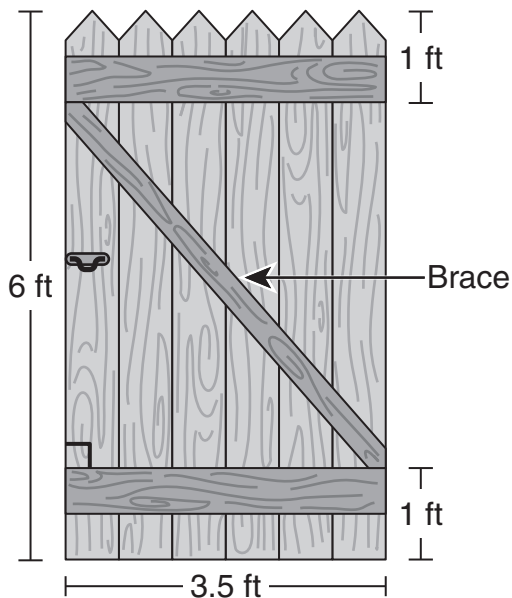


Which best describes the relationship shown on the graph?

- A Negative trend
- B Positive trend
- C Constant trend
- D No trend

- 34 Which expression represents the area of a rectangle with sides measuring  $2x^2y^4z$  units and  $5xy^4z^3$  units?
- F  $7x^2y^8z^3$  units<sup>2</sup>  
 G  $7x^3y^8z^4$  units<sup>2</sup>  
 H  $10x^3y^8z^4$  units<sup>2</sup>  
 J  $10x^2y^8z^3$  units<sup>2</sup>

- 35 Mr. Carpenter built a wooden gate, as shown below.



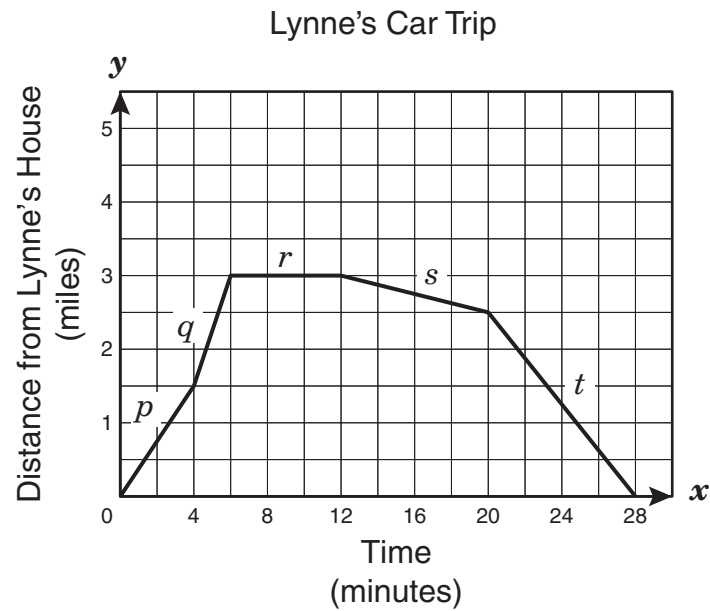
Which is closest to the length in feet of the diagonal board that Mr. Carpenter used to brace the wooden gate?

- A 4.9 ft  
 B 5.3 ft  
 C 6.1 ft  
 D 6.9 ft

- 36 Heidi has a main-course choice of a hamburger, a hot dog, an egg roll, a taco, a fish sandwich, or a chicken sandwich. She has a side-order choice of french fries, corn chips, potato chips, or a salad. Heidi's beverage choice can be a soda, fruit punch, milk, or water. Which is the best method to determine how many different combinations Heidi could choose?

- F Add the total number of items in the 3 categories together
- G Multiply the total number of main-course choices by the total number of side-order choices and add the product to the total number of beverage choices
- H Multiply the sum of the total number of main-course choices and the total number of side-order choices by the total number of beverage choices
- J Multiply the total number of items in each of the 3 categories together

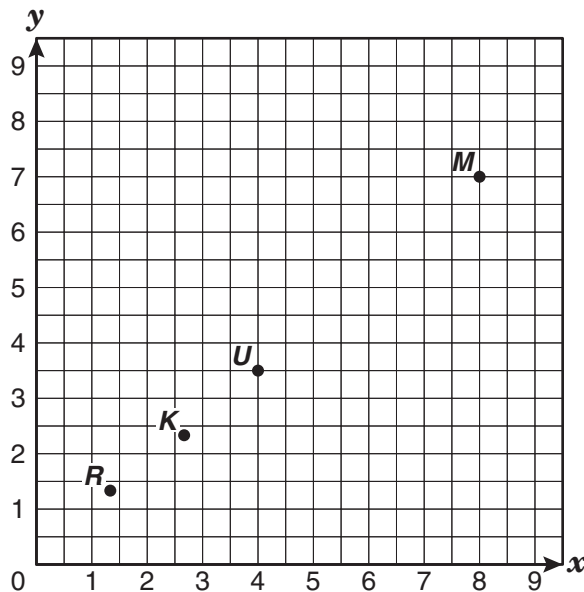
- 37 The graph below represents Lynne's car trip from her house to the mall and then back to her house.



If each section of the graph represents part of Lynne's trip, which part of the trip took the least amount of time?

- A**  $r$
- B**  $p$
- C**  $q$
- D**  $s$
- 
- 38 Brandon has a budget of \$58 to spend on clothes. The shirts he wants to buy are on sale for \$9 each, and the pair of pants he wants costs \$21. All prices include tax. Which inequality could be used to determine  $s$ , the maximum number of shirts Brandon can buy if he also buys the pair of pants?
- F**  $21s + 9 < 58$
- G**  $9s + 21 \leq 58$
- H**  $30s < 58$
- J**  $9s - 21 \leq 58$

- 39 Which point on the grid below best represents the coordinates  $(\frac{8}{3}, \frac{7}{3})$ ?



- A Point  $K$   
B Point  $M$   
C Point  $R$   
D Point  $U$
- 
- 40  $\triangle LMN$  has vertices  $L(a, b)$ ,  $M(r, s)$ , and  $N(u, v)$ . What will be the new coordinates of point  $M$  if the triangle is translated 7 units to the right and 3 units down?
- F  $(r + 3, s - 7)$   
G  $(r + 7, s - 3)$   
H  $(r - 7, s + 3)$   
J  $(r - 3, s + 7)$
- 41 To find  $c$ , the total cost of an order of DVDs from a certain website, the equation  $c = 19.99n + 4.99$  can be used, where  $n$  represents the number of DVDs ordered. If  $c$  is a function of  $n$ , which of the following best describes this relationship?
- A The value of  $n$  is constant in relation to  $c$ .  
B The value of  $n$  is dependent on  $c$ .  
C The value of  $c$  is constant in relation to  $n$ .  
D The value of  $c$  is dependent on  $n$ .



- 42 Mrs. Shawnee wants to buy fresh cherries to make some cherry pies for the school bake sale. The table below shows the sale prices of fresh cherries at 4 local markets.

Cherry Prices

Market	Cherries
Rosie's Fruit Stand	6 pints for \$5.40
Fruits and More	1 gallon for \$5.80
Nicky's Fruit Store	2 quarts for \$3.00
Freshly Picked Fruits	11 cups for \$4.50

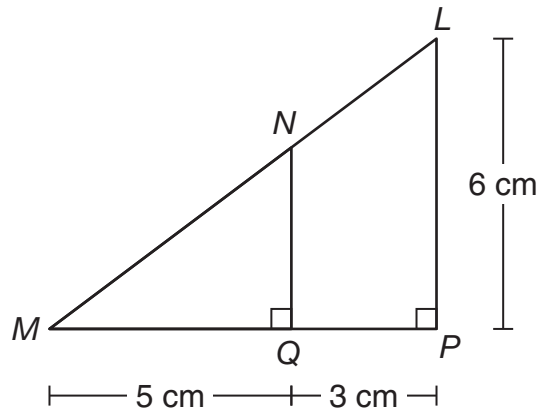
According to the table, which market has the best sale price per cup of cherries?

- F Rosie's Fruit Stand
- G Fruits and More
- H Nicky's Fruit Store
- J Freshly Picked Fruits

- 
- 43 Narong's family bought 3 shirts, 2 pairs of jeans, and 2 pairs of shoes. Each shirt cost \$18, and each pair of shoes cost \$35. The jeans were marked down from their original price of \$40. What other information, if any, is needed to find the total cost of the 7 items before tax?

- A The percent markdown for the shirts
- B The original price of the jeans
- C The percent markdown for the jeans
- D No additional information is needed.

44  $\triangle MNQ$  is similar to  $\triangle MLP$ .



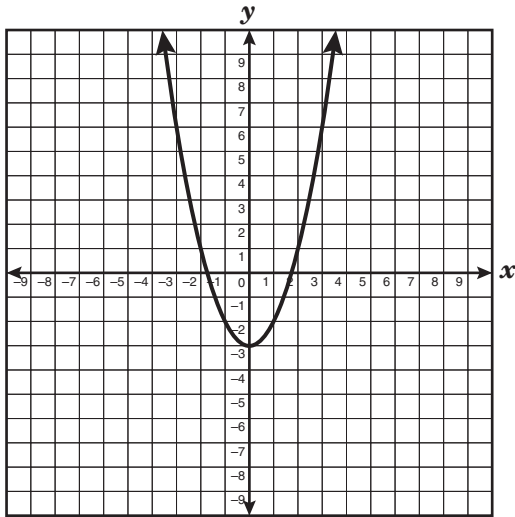
If  $ML = 10$  centimeters, what is the length of  $\overline{MN}$ ?

- F 6.25 cm
- G 8.3 cm
- H 7.5 cm
- J 4 cm

45 A jar contains 6 red marbles and 10 blue marbles, all of equal size. If Dominic were to randomly select 1 marble without replacement and then select another marble from the jar, what would be the probability of selecting 2 red marbles from the jar?

- A  $\frac{9}{64}$
- B  $\frac{1}{8}$
- C  $\frac{3}{5}$
- D  $\frac{3}{8}$

- 46 The graph of the function  $y = x^2 - 3$  is shown below.



If the graph of the original function is shifted 5 units up, which of the following equations best represents the translation of each point on the curve?

- F  $y = x^2 + 5$
- G  $y = x^2 + 2$
- H  $y = x^2 - 2$
- J  $y = x^2 - 8$

- 47 What is the simplified form of  $\frac{a^4 b^2 c}{a^3 b^5 c^2}$ ?

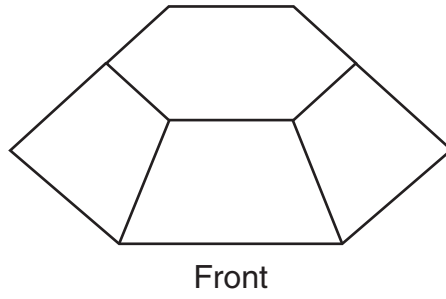
A  $ab^3c^2$

B  $\frac{a}{b^3c^3}$

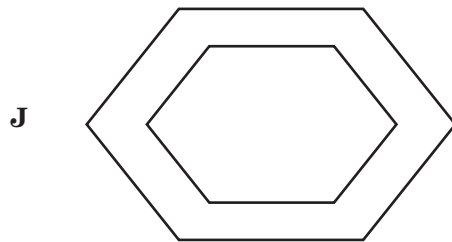
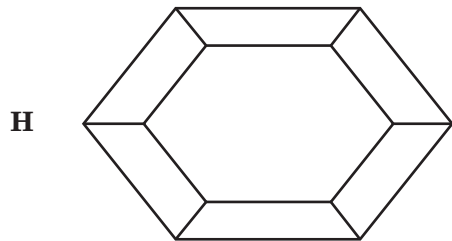
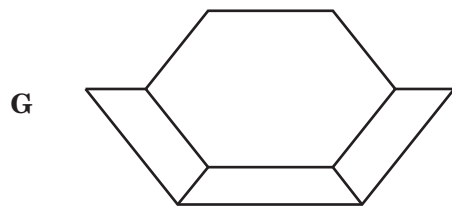
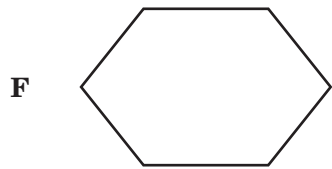
C  $a^7b^7c^3$

D  $\frac{a}{b^3c}$

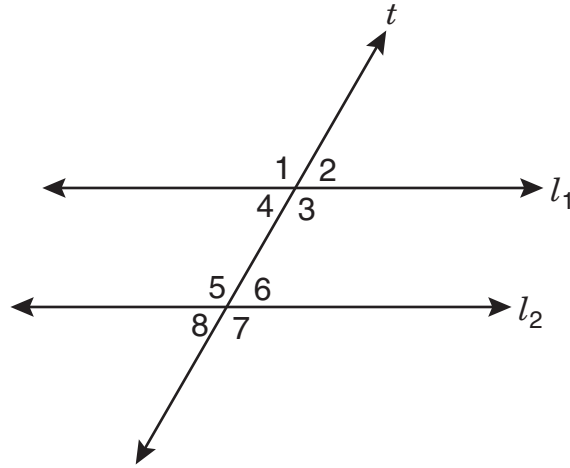
48 The drawing below shows a solid with hexagonal bases.



Which drawing best represents the top view of this hexagonal solid?



49 Line  $t$  intersects parallel lines  $l_1$  and  $l_2$ , as shown below.



According to the information provided, which of the following pairs of angles are not always congruent?

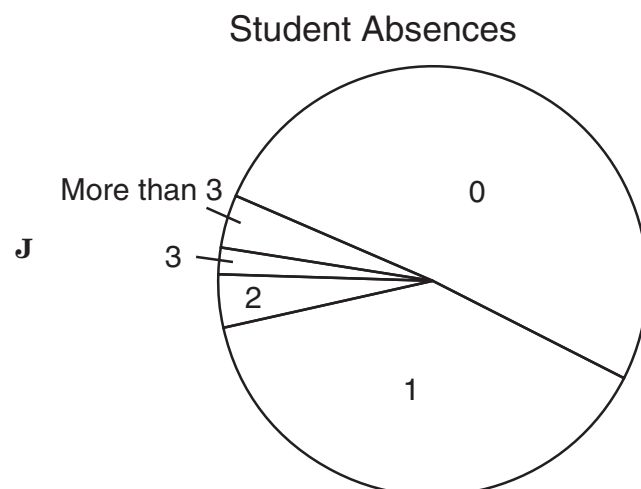
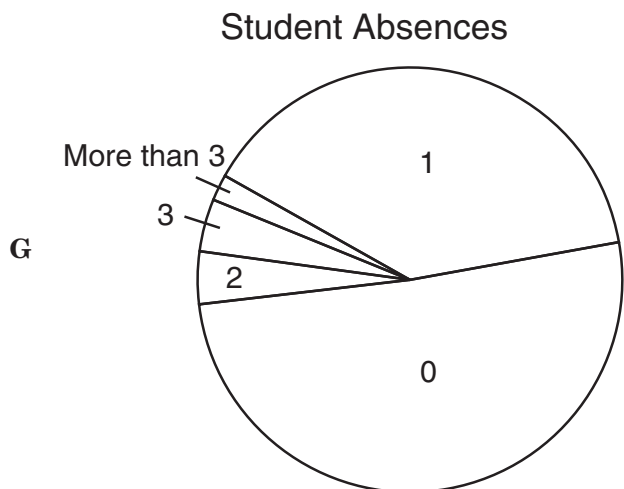
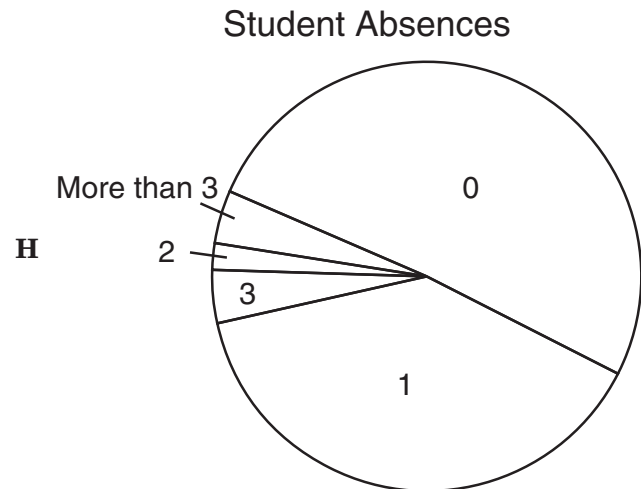
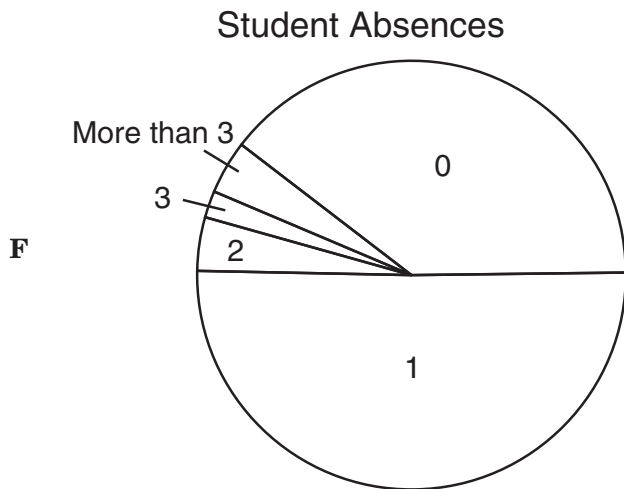
- A Same-side interior angles 4 and 5
- B Alternate interior angles 3 and 5
- C Corresponding angles 2 and 6
- D Vertical angles 5 and 7

50 The table below shows the number of student absences for the school year in Mr. Cruz's math classes.

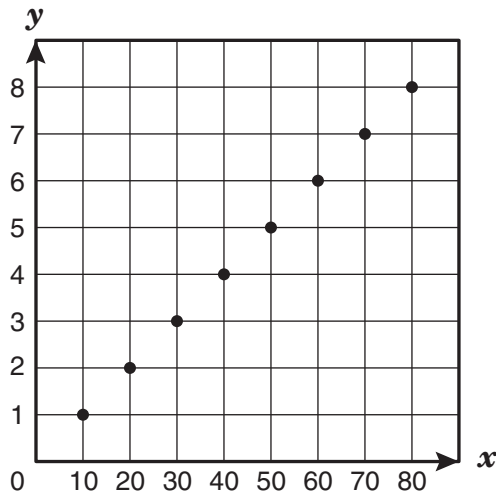
Student Absences

Days Absent	Number of Students
0	73
1	55
2	6
3	3
More than 3	6

Which of the following graphs best represents the data shown in the table?



51 Look at the graph below.



Which is the best interpretation of this graph?

- A Jorge earns \$20 for each hour worked.
- B For every 10 pieces of candy Stacey buys, she pays \$1.
- C For every 10 students at a dance, 2 teachers are needed as chaperones.
- D A runner runs at a constant rate of 2 miles every 30 minutes.

52 A florist plans to sell bouquets for \$25 each. He wants to use only roses and carnations in each bouquet and needs to charge the following amount for each type of flower.

\$1.50 per rose

\$1.25 per carnation

Which of these combinations of roses and carnations will result in bouquets that the florist can sell for exactly \$25 each?

- I. 18 roses and 2 carnations
- II. 6 roses and 10 carnations
- III. 10 roses and 8 carnations
- IV. 5 roses and 14 carnations

- F I and II only
- G II and III only
- H III and IV only
- J I and IV only

BE SURE YOU HAVE RECORDED ALL OF YOUR ANSWERS  
ON THE ANSWER DOCUMENT.









# Texas Assessment of Knowledge and Skills - Answer Key

**Grade: 09**  
**Subject: Mathematics**  
**Administration: April 2006**

The letter A indicates that the student expectation listed is from the Algebra I TEKS.

Item Number	Correct Answer	Objective Measured	Student Expectations
01	D	05	A.D1 (C)
02	G	06	8.7 (D)
03	C	10	8.16 (B)
04	F	07	8.7 (A)
05	D	01	A.B1 (D)
06	F	02	A.B3 (A)
07	C	10	8.14 (C)
08	G	07	8.7 (B)
09	A	08	8.8 (A)
10	J	04	A.C3 (B)
11	B	03	A.C2 (B)
12	G	03	A.C2 (C)
13	D	10	8.14 (A)
14	H	08	8.8 (C)
15	A	03	A.C1 (C)
16	G	02	A.B4 (A)
17	A	03	A.C2 (A)
18	G	10	8.14 (B)
19	C	03	A.C2 (E)
20	G	06	8.6 (A)
21	2160	09	8.3 (B)
22	J	02	A.B2 (A)
23	C	07	8.7 (C)
24	G	10	8.16 (A)
25	C	01	A.B1 (B)
26	J	08	8.10 (A)
27	B	04	A.C3 (C)
28	F	09	8.13 (B)
29	A	09	8.12 (A)
30	H	01	A.B1 (C)
31	D	08	8.8 (C)
32	J	04	A.C4 (A)
33	B	02	A.B2 (D)
34	H	05	A.D3 (A)
35	B	08	8.9 (A)
36	J	10	8.14 (B)
37	C	01	A.B1 (E)
38	G	04	A.C3 (A)
39	A	06	8.7 (D)
40	G	06	8.6 (B)
41	D	01	A.B1 (A)
42	G	10	8.14 (C)
43	C	10	8.14 (A)
44	F	08	8.9 (B)
45	B	09	8.11 (A)
46	G	05	A.D1 (C)
47	D	05	A.D3 (A)
48	H	07	8.7 (A)
49	A	10	8.16 (B)
50	J	09	8.12 (C)
51	B	02	A.B2 (C)
52	H	04	A.C3 (C)