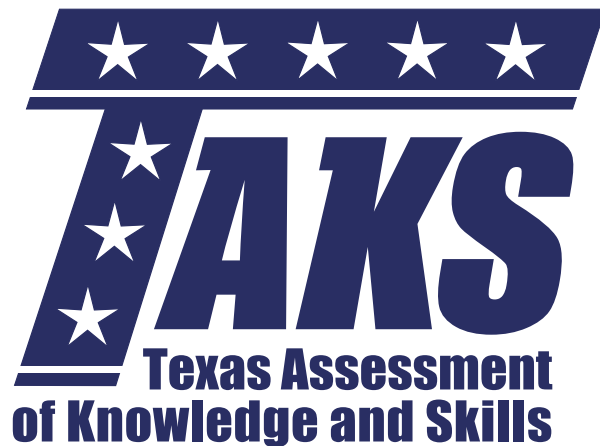


STUDENT NAME \_\_\_\_\_



**GRADE 7  
WRITING  
MATHEMATICS  
READING**

**Administered Spring 2004**

# MATHEMATICS

**DIRECTIONS**

Read each question. Then fill in the correct answer on your answer document. If a correct answer is not here, mark the letter for “Not here.”

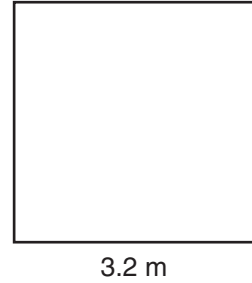
**SAMPLE A**

Find the greatest common factor of 12 and 18.

- A 3
- B 6
- C 9
- D Not here

**SAMPLE B**

Find the perimeter of this square rug in meters.

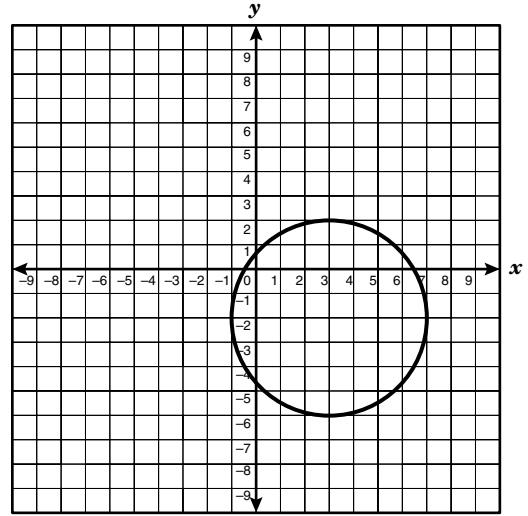


Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.



- 1 Emmanuel can run 100 meters in 20 seconds. If he competes in the 400-meter race, about how many seconds will it take him to run the race?
- A 5 sec
  - B 4 sec
  - C 80 sec
  - D 20 sec

- 2 Which of the following coordinates lie within the circle graphed below?



- F (2, 3)
- G (3, -5)
- H (3, 3)
- J (5, 3)

- 3 Mrs. Vega needed to make 2 costumes for a school play. The larger costume required  $4\frac{1}{4}$  yards of material, and the smaller costume required  $\frac{3}{4}$  yard less than the larger one. Which equation can be used to find  $n$ , the number of yards of material needed for the smaller costume?

A  $n = 4\frac{1}{4} + \frac{3}{4}$

B  $n = 4\frac{1}{4} \cdot \frac{3}{4}$

C  $n = 4\frac{1}{4} \div \frac{3}{4}$

D  $n = 4\frac{1}{4} - \frac{3}{4}$

- 4 Mrs. Penn has a circular tablecloth with a circumference of 29 feet. Which expression could be used to find the radius of the tablecloth?

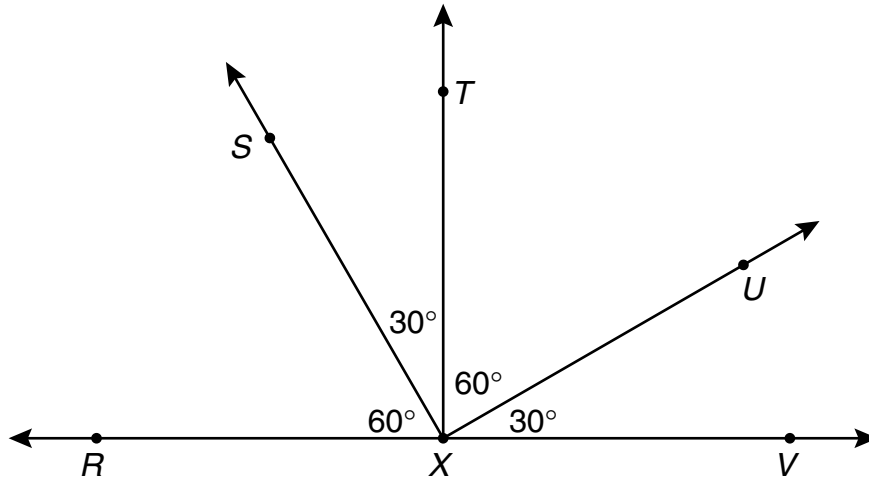
F  $29 - 2\pi$

G  $\frac{29}{2\pi}$

H  $\frac{29}{\pi}$

J  $29 + 2\pi$

5 Which 2 angles are NOT complementary?



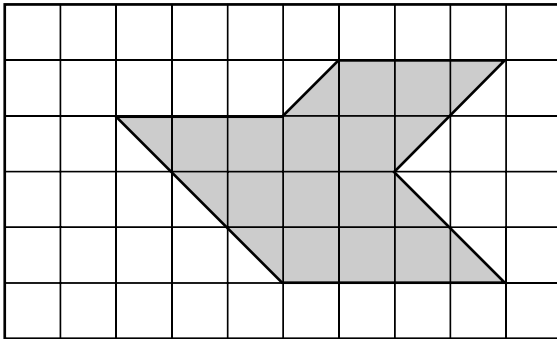
- A  $\angle RXS$  and  $\angle TXU$
- B  $\angle SXT$  and  $\angle TXU$
- C  $\angle RXS$  and  $\angle SXT$
- D  $\angle TXU$  and  $\angle UXV$

6 An equilateral triangle is divided into 4 congruent equilateral triangles. What method can be used to find the area of the larger equilateral triangle, given the area of one of the smaller triangles?

- F Multiply the area of the larger equilateral triangle by 4
- G Multiply the area of one congruent equilateral triangle by 4
- H Subtract the area of one congruent triangle from the area of the larger equilateral triangle
- J Add the area of the larger equilateral triangle to the areas of the 4 congruent equilateral triangles

- 7 Bloom's Nursery designed a plan for Mrs. Hartrick's flower bed, as shown in the shaded part of the grid below.

Flower-Bed Plan



Each square on the grid represents 5 square feet. What will be the approximate area of the flower bed?

- A 100 ft<sup>2</sup>
- B 80 ft<sup>2</sup>
- C 20 ft<sup>2</sup>
- D 16 ft<sup>2</sup>

- 8 Mr. Palmer started a new business and hired 12 employees. A list of the employees and their hourly wages is shown below.

Employee Wages

| Employee Number | Hourly Wage |
|-----------------|-------------|
| 774             | \$8.25      |
| 846             | \$6.85      |
| 616             | \$7.25      |
| 271             | \$9.15      |
| 806             | \$8.95      |
| 435             | \$7.25      |
| 736             | \$7.25      |
| 248             | \$9.15      |
| 192             | \$7.50      |
| 329             | \$8.60      |
| 685             | \$8.25      |
| 377             | \$6.95      |

What should Mr. Palmer do to organize the data in order to identify which employees earn less than the median hourly wage?

- F He should add up all the hourly wages.
- G He should list the employee numbers in order from greatest to least.
- H He should list the hourly wages in order from least to greatest with their corresponding employee numbers.
- J He should list the employee numbers in order from least to greatest with their corresponding hourly wages.

- 9 Which of the following is NOT true about similar figures?
- A Similar figures always have the same shape.
  - B Similar figures always have the same size.
  - C Similar figures always have corresponding angles that are equal.
  - D Similar figures always have corresponding sides that are proportional.

- 10 Mr. Cohen used 25 kilograms of fertilizer on his lawn. The fertilizer contained 2 kilograms of nitrogen. Which equation can be used to find  $x$ , the percent of nitrogen in the fertilizer Mr. Cohen used?

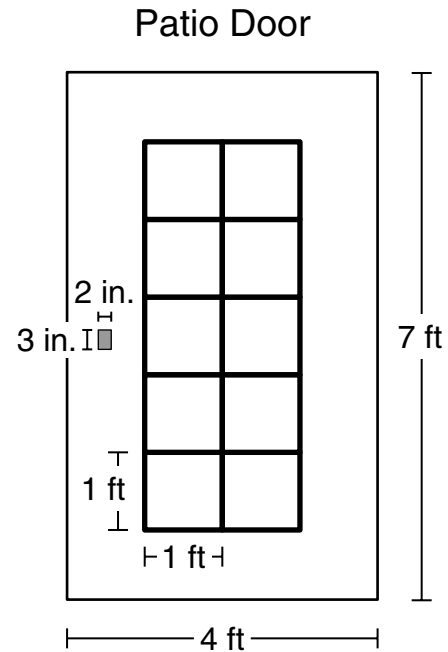
F  $\frac{x}{100} = \frac{2}{25}$

G  $\frac{x}{100} = \frac{25}{2}$

H  $\frac{x}{2} = \frac{27}{100}$

J  $\frac{25}{27} = \frac{x}{100}$

- 11 Ms. Wagner painted the outside of the patio door to her house, as shown below. She did not paint the window or the doorknob.



Which is closest to the painted area of the door in square feet?

- A  $31 \text{ ft}^2$
  - B  $28 \text{ ft}^2$
  - C  $25 \text{ ft}^2$
  - D  $18 \text{ ft}^2$
- 12 Which sequence follows the rule  $8n - 4$ , where  $n$  represents the position of a term in the sequence?
- F 16, 12, 8, 4, 0, ...
  - G 8, 16, 24, 32, 40, ...
  - H 4, 16, 64, 216, 1,024, ...
  - J 4, 12, 20, 28, 36, ...

- 13 The table below shows the favorite sports of the students at Tompkins Middle School.

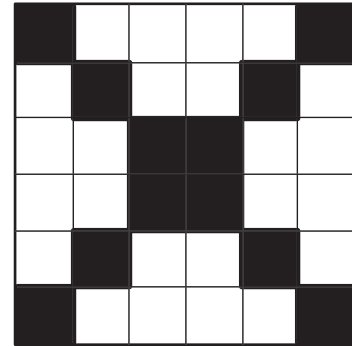
Favorite Sports

| Sport      | Number of Students |
|------------|--------------------|
| Cycling    | 950                |
| Swimming   | 900                |
| Basketball | 675                |
| Volleyball | 450                |

Based on the information in the table, which of the following is a reasonable assumption?

- A About 3 times as many students like cycling as volleyball.
- B Swimming is almost twice as popular as basketball.
- C About 2 times as many students like swimming as volleyball.
- D Volleyball is the most popular sport.

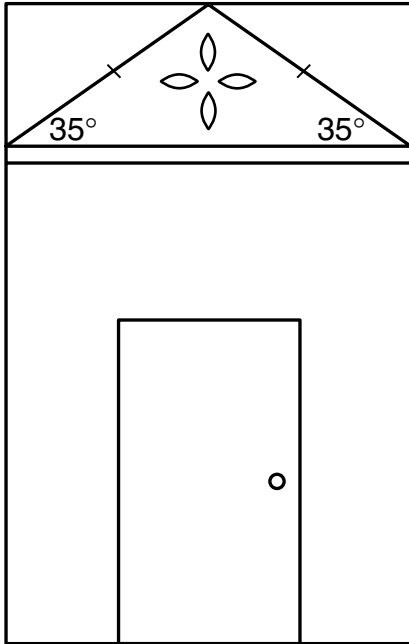
- 14 Sandra colored  $\frac{1}{3}$  of her picture black, as shown below.



What percent of her picture did Sandra color black?

- F 12%
- G 24%
- H  $33\frac{1}{3}\%$
- J  $66\frac{2}{3}\%$

- 15 Mr. Olivares installed a triangular piece of stained glass above his front door.



Which of the following best describes the triangle with the given measures?

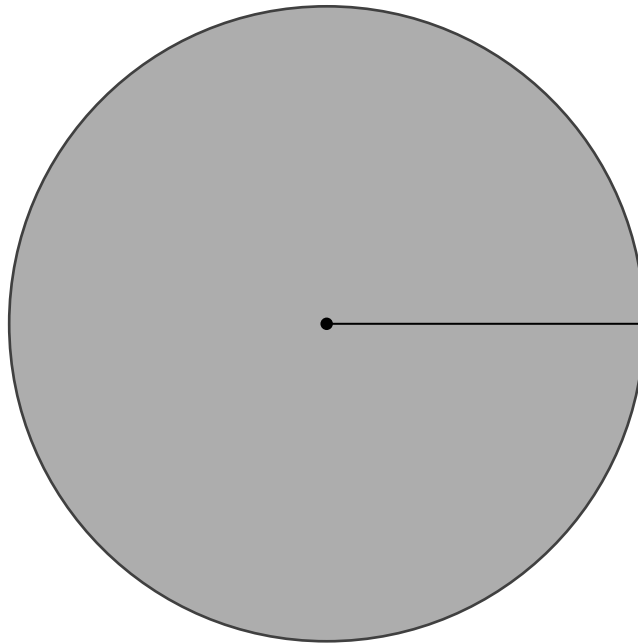
- A Acute equilateral triangle
- B Obtuse isosceles triangle
- C Right scalene triangle
- D Right isosceles triangle

- 16 Mrs. Loya sponsors the Spanish club at Central Middle School. The club has 8 members who are sixth graders, 12 members who are seventh graders, and 10 members who are eighth graders. What percent of the Spanish club members are seventh graders?

- F 40%
- G 30%
- H 26%
- J 10%

- 17 Yoko made a circular coaster in pottery class. Use the ruler on the Mathematics Chart to measure the radius of the coaster in centimeters.

Coaster



Which of the following is closest to the area of the top of the coaster?

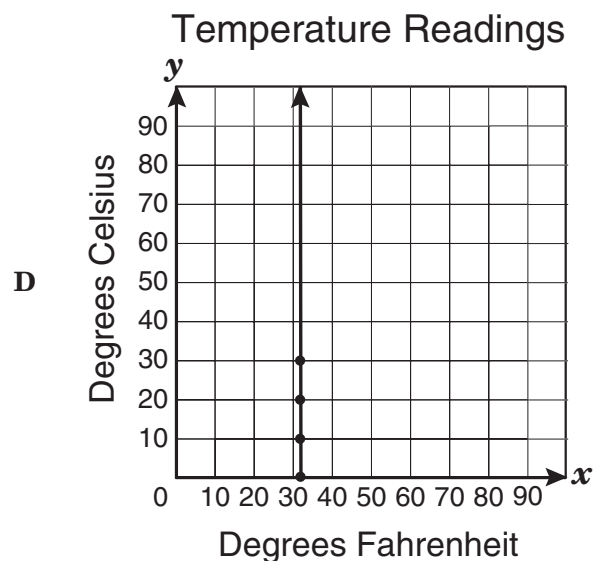
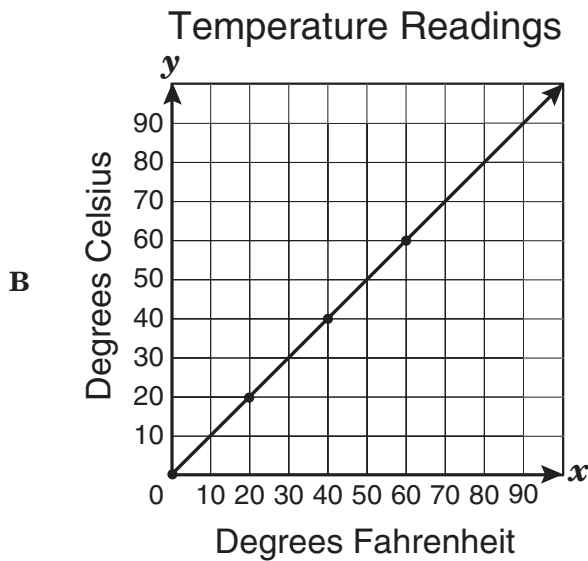
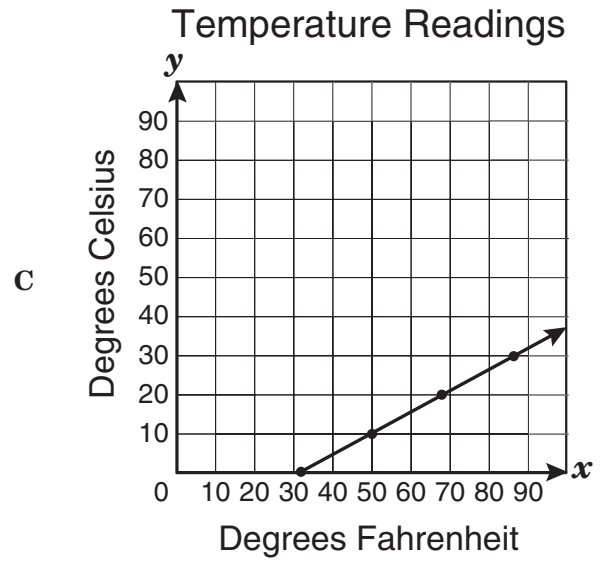
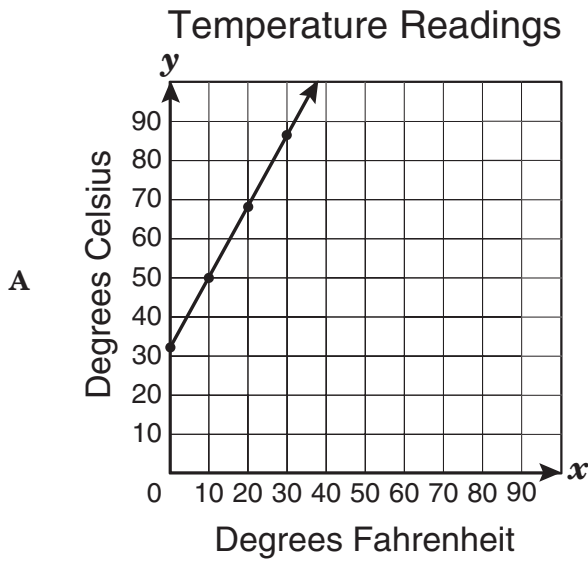
- A  $64 \text{ cm}^2$
  - B  $24 \text{ cm}^2$
  - C  $46 \text{ cm}^2$
  - D  $51 \text{ cm}^2$
- 
- 18 Hilda bought 4 orders of french fries at \$0.67 each, 3 hamburgers at \$1.28 each, and 4 shakes at \$2.25 each. She paid 8.25% tax on the whole order. What other information is necessary to find Hilda's correct change?
- F Total cost of the order
  - G Amount she paid in tax
  - H Amount she gave the cashier
  - J Reason for buying the food

- 19 The data in the table below show the relationship between temperature readings in degrees Fahrenheit,  $x$ , and degrees Celsius,  $y$ .

Temperature Readings

| Degrees Fahrenheit, $x$ | Degrees Celsius, $y$ |
|-------------------------|----------------------|
| 32                      | 0                    |
| 50                      | 10                   |
| 68                      | 20                   |
| 86                      | 30                   |

Which graph best represents the data in the table above?



20 Which description shows the relationship between a term and  $n$ , its position in the sequence?

| Position      | 1             | 2 | 3              | 4 | 5              | $n$ |
|---------------|---------------|---|----------------|---|----------------|-----|
| Value of Term | $\frac{1}{2}$ | 1 | $1\frac{1}{2}$ | 2 | $2\frac{1}{2}$ |     |

F Multiply  $n$  by  $\frac{1}{2}$

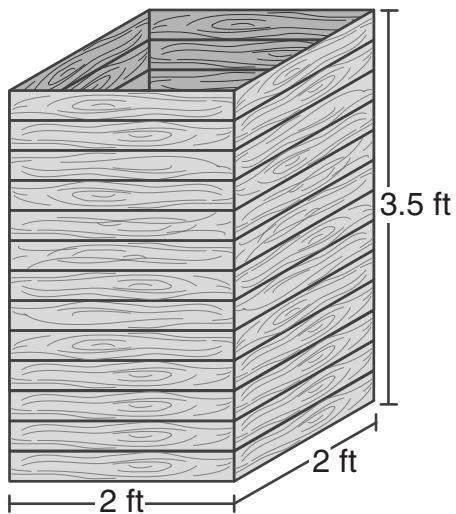
G Subtract  $\frac{1}{2}$  from  $n$

H Add  $\frac{1}{2}$  to  $n$

J Divide  $n$  by  $\frac{1}{2}$

21 Mr. Williams built a wooden storage box.

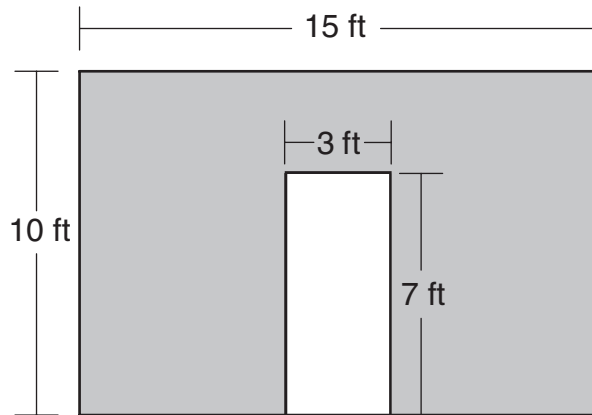
Storage Box



The storage box was 3.5 feet high by 2 feet wide by 2 feet long. What is the volume of the storage box in cubic feet?

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

- 22 Mrs. Jones wants to paint a wall but not the door on the wall.



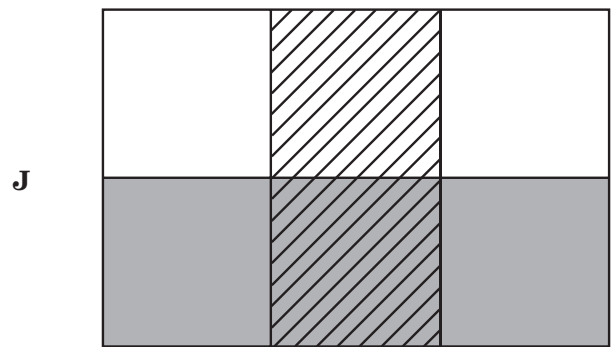
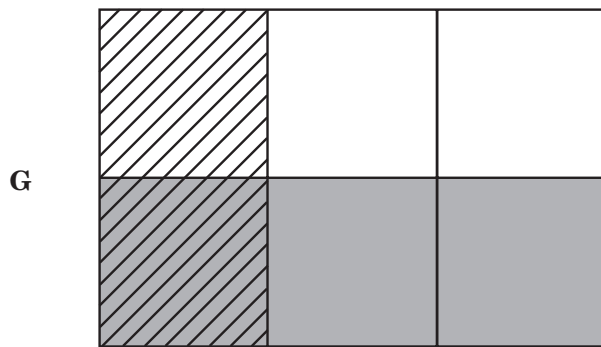
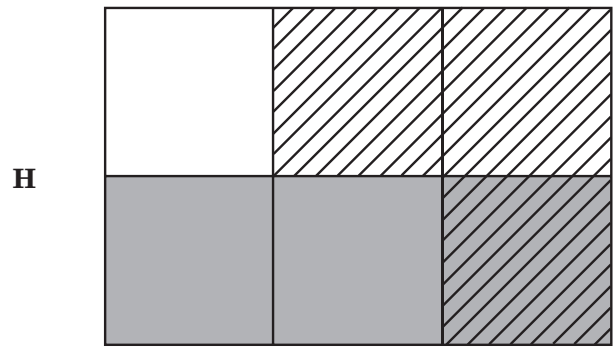
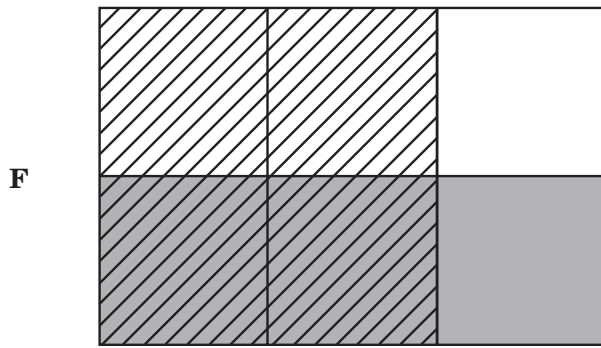
How many square feet of wall does Mrs. Jones need to paint?

- F  $36 \text{ ft}^2$
- G  $171 \text{ ft}^2$
- H  $129 \text{ ft}^2$
- J  $150 \text{ ft}^2$

- 23 A sports-shop owner bought some baseball cards and then sold them for \$7.50 each. He sold 150 cards on Monday and 82 cards on Tuesday. What piece of information is needed to find the amount of profit he made from the sale of the baseball cards on Monday and Tuesday?

- A How much the shop owner paid for the baseball cards
- B Number of cards sold on Wednesday
- C Total number of cards sold
- D Number of football cards bought by the shop owner

24 Which model best represents the expression  $\frac{1}{2} \times \frac{2}{3}$ ?



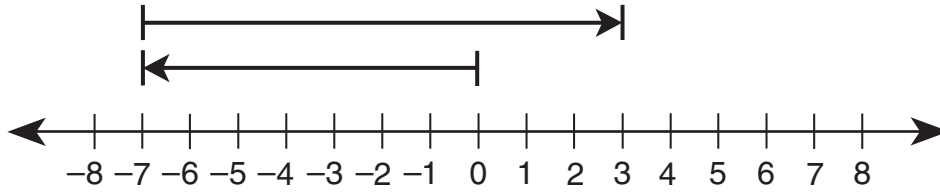
25 Which of the following represents the greatest percent of change?

- A** A tree grew from 6 feet to 12 feet in 1 year.
- B** An aquarium that was originally priced at \$80 is now \$60.
- C** A person whose salary was \$100 per week is now earning \$120 per week.
- D** A baby who weighed 7 pounds at birth now weighs 16 pounds.

26 Mr. Haskell bought 7 calves for \$3,500.00. He later bought another calf for \$660.00. What was the mean cost of all the calves?

- F** \$355.00
- G** \$500.00
- H** \$520.00
- J** \$4,160.00

27 Which expression is represented by the model below?



- A  $-7 + 0$
- B  $-7 + 3$
- C  $-7 + 7$
- D  $-7 + 10$

- 28 Trinh has 2 quarters, 1 dime, 2 nickels, and 1 penny in his pocket. Which list shows all the possible unique outcomes if Trinh chooses 3 coins at one time from his pocket?

**F**

Coin Outcomes

|         |         |         |
|---------|---------|---------|
| Quarter | Dime    | Nickel  |
| Quarter | Dime    | Penny   |
| Dime    | Quarter | Nickel  |
| Nickel  | Quarter | Penny   |
| Nickel  | Penny   | Quarter |
| Penny   | Nickel  | Dime    |

**H**

Coin Outcomes

|         |         |        |
|---------|---------|--------|
| Quarter | Quarter | Nickel |
| Quarter | Quarter | Dime   |
| Quarter | Quarter | Penny  |
| Quarter | Dime    | Penny  |
| Quarter | Nickel  | Nickel |
| Quarter | Nickel  | Dime   |
| Quarter | Nickel  | Penny  |
| Dime    | Nickel  | Penny  |
| Nickel  | Nickel  | Penny  |
| Nickel  | Nickel  | Dime   |

**G**

Coin Outcomes

|         |         |         |
|---------|---------|---------|
| Quarter | Penny   | Quarter |
| Dime    | Nickel  | Dime    |
| Nickel  | Dime    | Nickel  |
| Penny   | Quarter | Penny   |

**J**

Coin Outcomes

|         |         |        |
|---------|---------|--------|
| Quarter | Quarter | Nickel |
| Quarter | Quarter | Dime   |
| Quarter | Dime    | Penny  |
| Quarter | Nickel  | Nickel |
| Quarter | Nickel  | Dime   |
| Quarter | Penny   | Penny  |
| Dime    | Quarter | Nickel |
| Nickel  | Quarter | Dime   |
| Nickel  | Dime    | Penny  |

- 29 Timothy collected the following data during a science experiment.

Ball Drop Times

| Trial | Time (seconds) |
|-------|----------------|
| 1     | 18             |
| 2     | 11             |
| 3     | 15             |
| 4     | 11             |
| 5     | 13             |
| 6     | 11             |

Which measure of data is represented by 12 seconds?

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

- 30 Simplify the expression below.

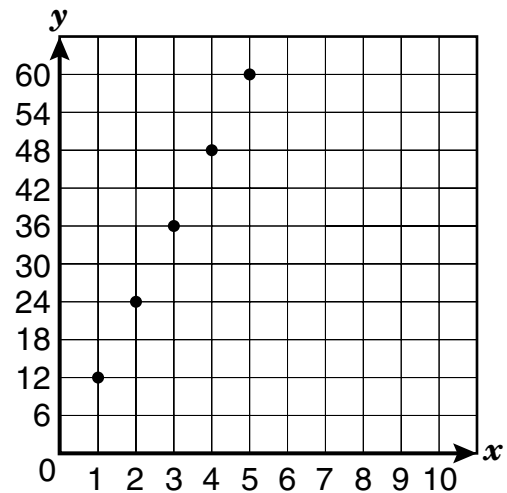
$$4 + 2(13 - 4) \div 3^2$$

- F 7
- G 6
- H 2
- J 8

- 31 It is estimated that 20.4% of the U.S. population in the year 2050 will be over the age of 65. Which number is NOT equivalent to 20.4%?

- A  $\frac{204}{1,000}$
- B  $\frac{20.4}{100}$
- C 0.204
- D 2.04

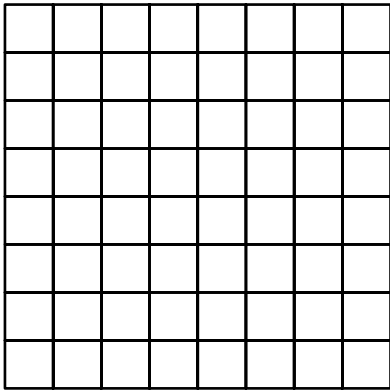
- 32 Which of the following relationships is best represented by the data in the graph?



- F Conversion of feet to inches
- G Conversion of miles to feet
- H Conversion of feet to yards
- J Conversion of inches to yards

33 Which model represents  $8^2$ ?

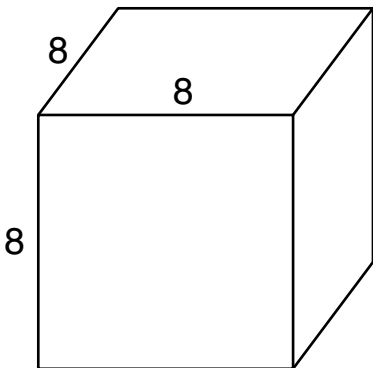
A



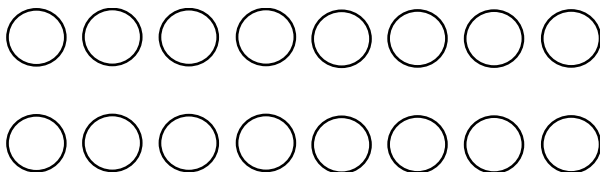
B



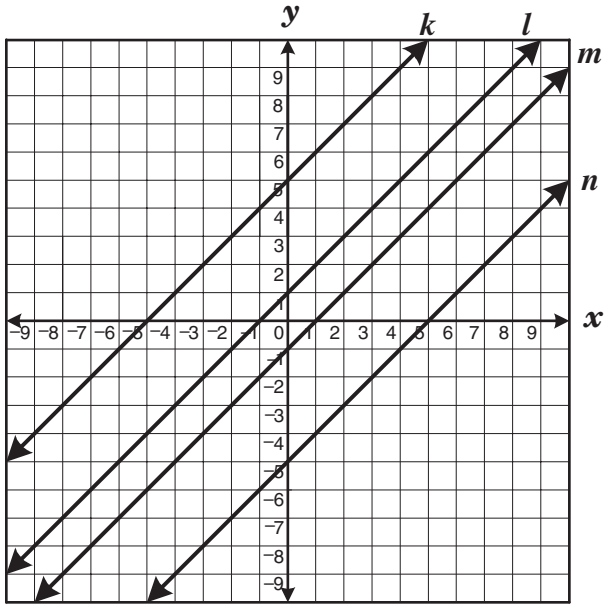
C



D



34 Which line contains the ordered pair  $(2, -3)$ ?



- F Line  $k$
- G Line  $l$
- H Line  $m$
- J Line  $n$

35 The table shows the number of blue-plate specials sold at a diner each day last week.

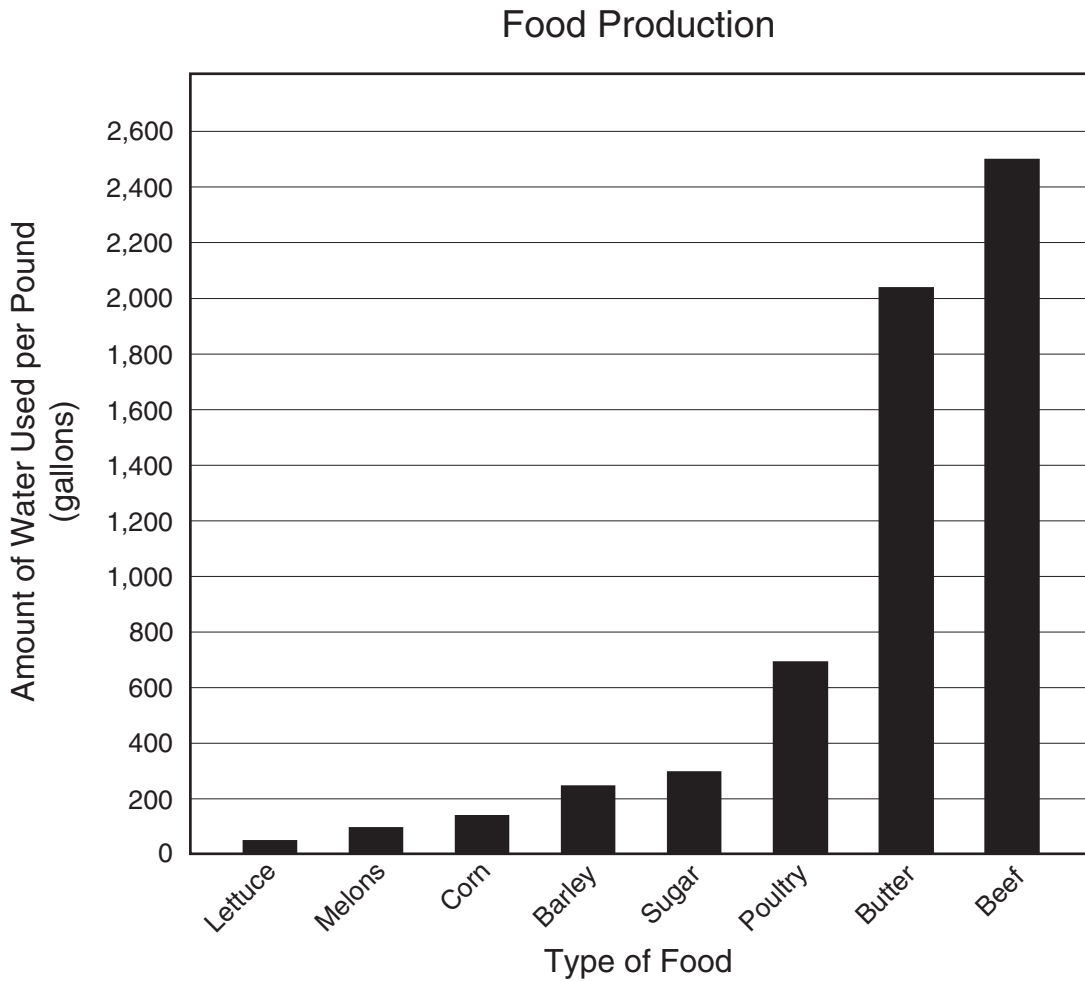
Blue-Plate Specials

| Day of Week | Number of Orders |
|-------------|------------------|
| Saturday    | 95               |
| Sunday      | 87               |
| Monday      | 35               |
| Tuesday     | 27               |
| Wednesday   | 31               |
| Thursday    | 39               |
| Friday      | 50               |

Which statement is NOT supported by these data?

- A There were almost 3 times as many orders placed on Sunday as on Wednesday.
- B There were almost twice as many orders placed on Saturday as on Friday.
- C The total number of orders placed on weekdays equals the number of orders placed over the weekend.
- D The average number of orders placed per day was 42.

36 The graph below shows the number of gallons of water used to produce a pound of various types of food.



Which statement is best supported by these data?

- F** Lettuce takes  $\frac{1}{2}$  as much water to grow as melons do.
- G** Beef production uses more water than the production of all the other food combined.
- H** It takes nearly 3 times the amount of water to produce a pound of poultry as it does to produce a pound of sugar.
- J** It takes the same amount of water to produce a pound of sugar or a pound of barley.

37 Which problem situation matches the equation below?

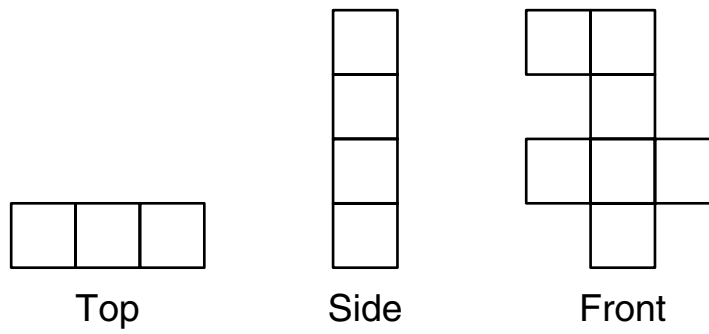
$$x - 4.72 = 5.28$$

- A Sergio's lunch cost \$4.72. He received \$5.28 in change when he paid the bill. What is  $x$ , the amount of money he gave the cashier?
- B Yvette cycled 4.72 kilometers in a race. The winning cyclist's time was 5.28 seconds faster than Yvette's. What is  $x$ , the time in seconds it took Yvette to finish the race?
- C Janice and Maura measured the wingspans of butterflies in science class. Janice's butterfly had a wingspan of 4.72 centimeters, and Maura's butterfly had a wingspan of 5.28 centimeters. What is  $x$ , the average length of a butterfly's wingspan?
- D Mrs. Castro paid \$4.72 for a jar of iced-tea mix that was originally priced at \$5.28. What is  $x$ , the amount of money that Mrs. Castro saved altogether?

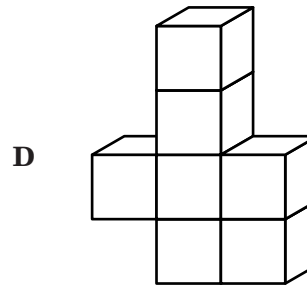
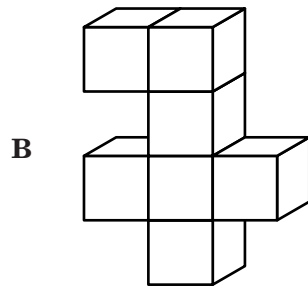
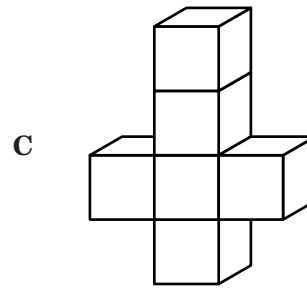
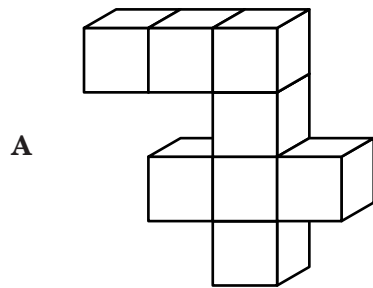
38 An electrician has been working at 4 customer sites. He has completed  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{8}$ , and  $\frac{3}{4}$  of his work at the sites. Which list shows the percent of work completed at the sites in order from greatest to least?

- F 12.5%, 25%, 50%, 75%
- G 0.75%, 0.125%, 0.25%, 0.50%
- H 75%, 50%, 25%, 12.5%
- J 25%, 50%, 75%, 125%

39 The top, side, and front views of a solid figure made of cubes are shown below.



Which solid figure is best represented by these views?

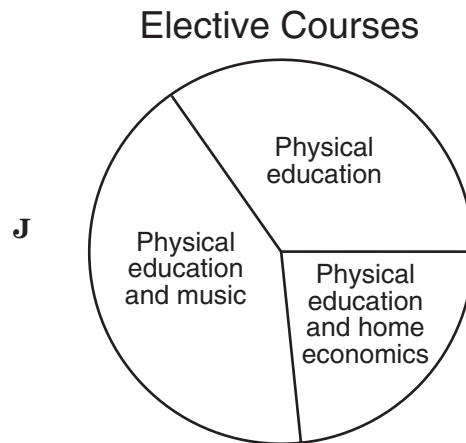
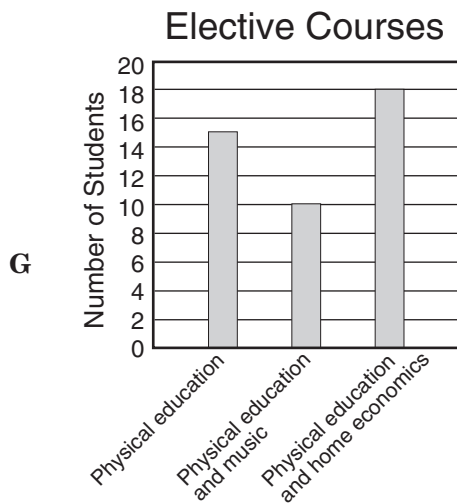
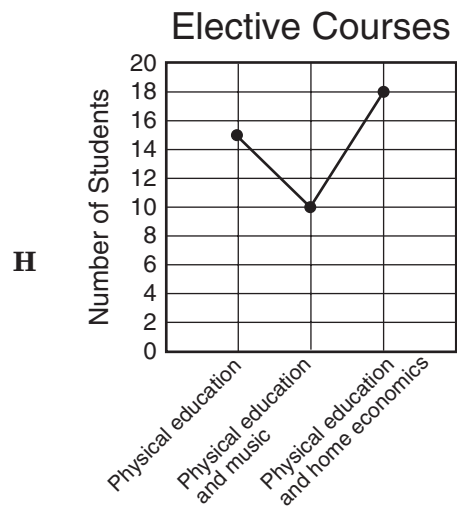
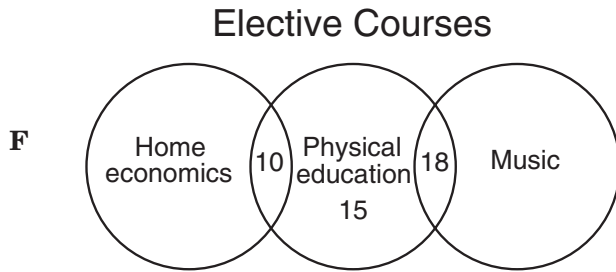


- 40 A counselor at Rosetta Middle School collected the following data about students taking elective courses.

### Elective Courses

| Course                                | Number of Students |
|---------------------------------------|--------------------|
| Physical education only               | 15                 |
| Physical education and music          | 18                 |
| Physical education and home economics | 10                 |

Which graph best represents these data?



- 41 Mr. Jenkins wants to buy some rosebushes for his garden. There are four stores in his neighborhood currently having sales on rosebushes.

### Rosebush Sales

| Store                | Sale Price               |
|----------------------|--------------------------|
| Sheldon's Plant Mart | 4 rosebushes for \$11.90 |
| Rose Mart            | 3 rosebushes for \$8.95  |
| Kathleen's Roses     | 2 rosebushes for \$5.90  |
| Rose Heaven          | 1 rosebush for \$2.96    |

If Mr. Jenkins wants to save as much money as possible, at which store should he shop?

- A Sheldon's Plant Mart, because he wants to buy 4 rosebushes
- B Rose Mart, because each rosebush costs almost \$3.00
- C Kathleen's Roses, because each rosebush costs \$2.95
- D Rose Heaven, because the selection is better

42 Which model represents  $9^2$ ?

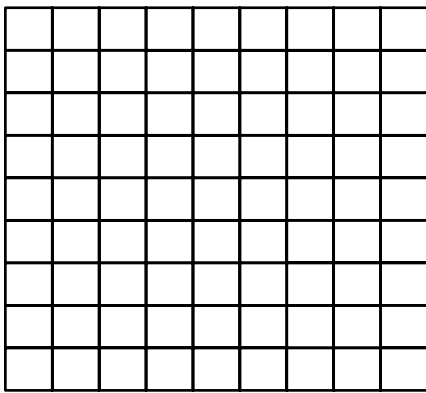
F



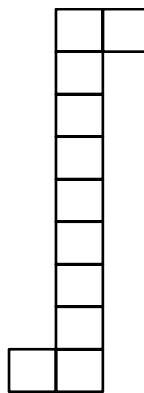
H



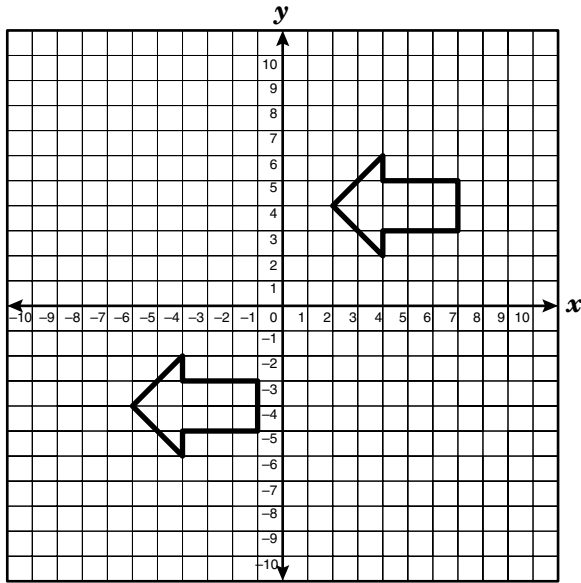
G



J



- 43 The figure below was transformed from quadrant I to quadrant III.



This transformation best represents a —

- A translation
- B tessellation
- C rotation
- D reflection

- 44 The model represents the equation  $x - 8 = 2$ .

$$\triangle x \quad \ominus \ominus \ominus \ominus = \oplus \oplus$$

|          |      |           |      |
|----------|------|-----------|------|
| Key      |      |           |      |
| $\oplus$ | = +1 | $\ominus$ | = -1 |

What is the value of  $x$ ?

- F  $x = -6$
- G  $x = 4$
- H  $x = 8$
- J  $x = 10$

- 45 Peaches are on sale at \$0.95 per pound. Mrs. Hinkle bought 2.75 pounds of peaches. About how much did she pay for the peaches?

- A Less than \$1.00
- B Between \$1.50 and \$2.00
- C Between \$2.50 and \$3.00
- D More than \$3.00

- 46 Terri collected data on the number of cans donated by each homeroom in her grade for a food drive. The table below shows the results of the food drive.

### Canned-Food Drive

| Homeroom Teacher | Number of Cans |
|------------------|----------------|
| Mr. Campbell     | 45             |
| Mrs. Padilla     | 63             |
| Ms. Pogue        | 92             |
| Mrs. Malmgren    | 27             |
| Mr. Dawson       | 115            |
| Ms. Morgan       |                |

Which number could be added to the set of data in order for the median and mode of the set to be equal?

- F** 54
- G** 63
- H** 80
- J** 88

- 47 An athlete on the school football team can run 20 yards in 2.9 seconds. During the last football game, the athlete ran 64 yards for a touchdown. If the athlete's rate of speed remained the same, about how long did it take him to run for the touchdown?

- A** 9.3 sec
- B** 21.3 sec
- C** 58 sec
- D** 19.2 sec

- 48 Ms. Abbot went on a road trip. The trip was 792 miles, and the average price of gasoline was \$1.30 per gallon. What information is needed to find the amount Ms. Abbot spent on gasoline for the trip?

- F** Number of hours the trip took
- G** Number of miles per hour the car traveled
- H** Average number of miles the car traveled per gallon of gasoline
- J** Average number of miles Ms. Abbot drove per day

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

