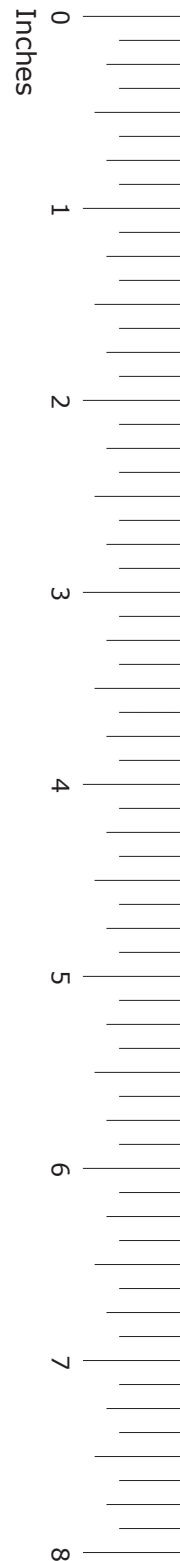
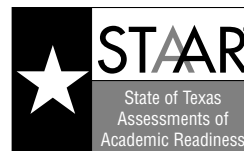


GRADE 7
Mathematics

Administered April 2014

RELEASED

STAAR GRADE 7 MATHEMATICS REFERENCE MATERIALS



LENGTH

Customary

1 mile (mi) = 1,760 yards (yd)

1 yard (yd) = 3 feet (ft)

1 foot (ft) = 12 inches (in.)

Metric

1 kilometer (km) = 1,000 meters (m)

1 meter (m) = 100 centimeters (cm)

1 centimeter (cm) = 10 millimeters (mm)

VOLUME AND CAPACITY

Customary

1 gallon (gal) = 4 quarts (qt)

1 quart (qt) = 2 pints (pt)

1 pint (pt) = 2 cups (c)

1 cup (c) = 8 fluid ounces (fl oz)

Metric

1 liter (L) = 1,000 milliliters (mL)

WEIGHT AND MASS

Customary

1 ton (T) = 2,000 pounds (lb)

1 pound (lb) = 16 ounces (oz)

Metric

1 kilogram (kg) = 1,000 grams (g)

1 gram (g) = 1,000 milligrams (mg)

TIME

1 year = 12 months

1 year = 52 weeks

1 week = 7 days

1 day = 24 hours

1 hour = 60 minutes

1 minute = 60 seconds

STAAR GRADE 7 MATHEMATICS REFERENCE MATERIALS

PERIMETER

Rectangle

$$P = 2l + 2w$$

CIRCUMFERENCE

Circle

$$C = 2\pi r$$

or

$$C = \pi d$$

AREA

Triangle

$$A = \frac{1}{2}bh$$

Rectangle

$$A = bh$$

Parallelogram

$$A = bh$$

Trapezoid

$$A = \frac{1}{2}(b_1 + b_2)h$$

Circle

$$A = \pi r^2$$

VOLUME

Triangular prism

$$V = Bh$$

Rectangular prism

$$V = Bh$$

Cylinder

$$V = \pi r^2 h$$

or

$$V = Bh$$

ADDITIONAL INFORMATION

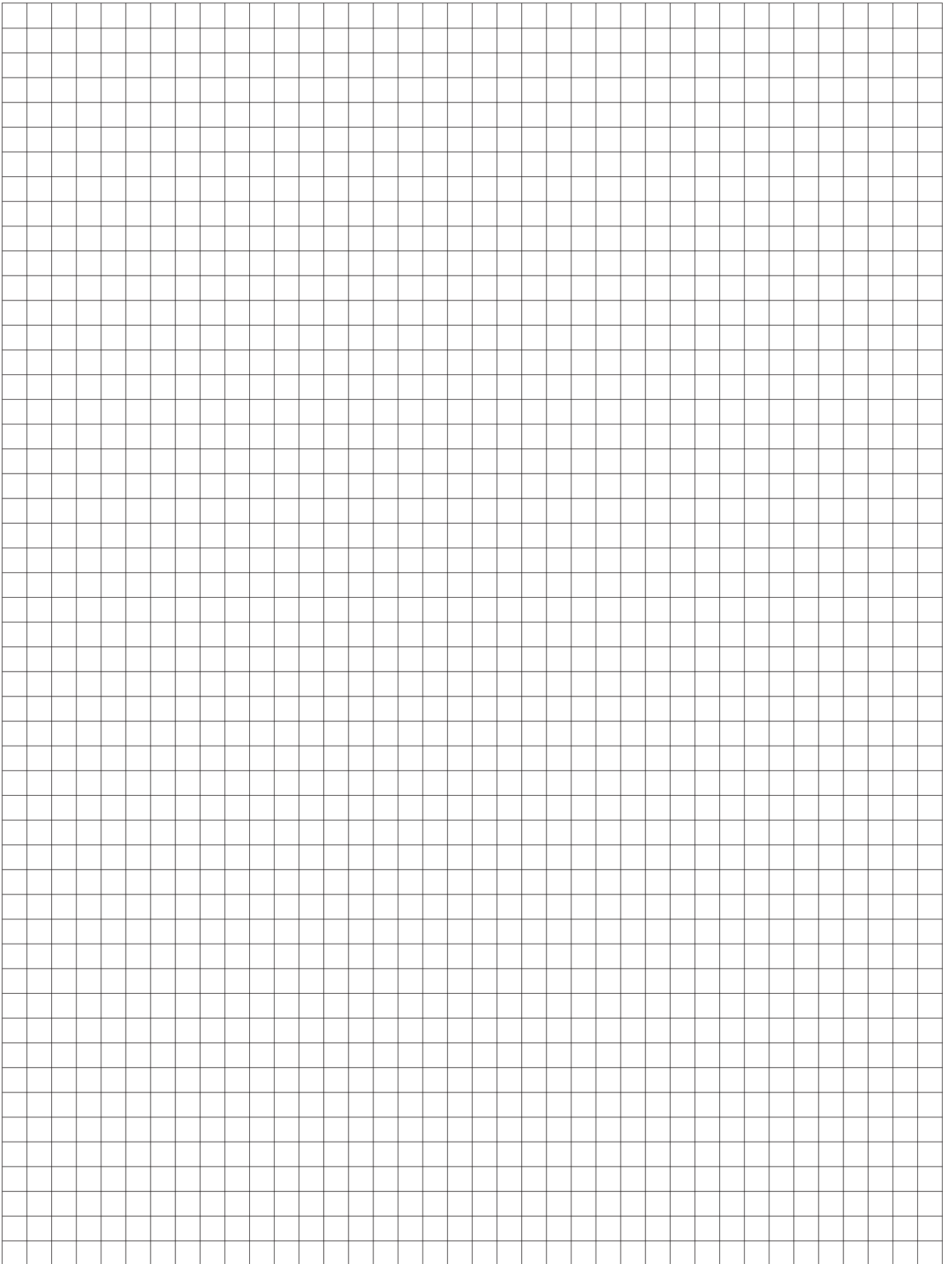
Pi

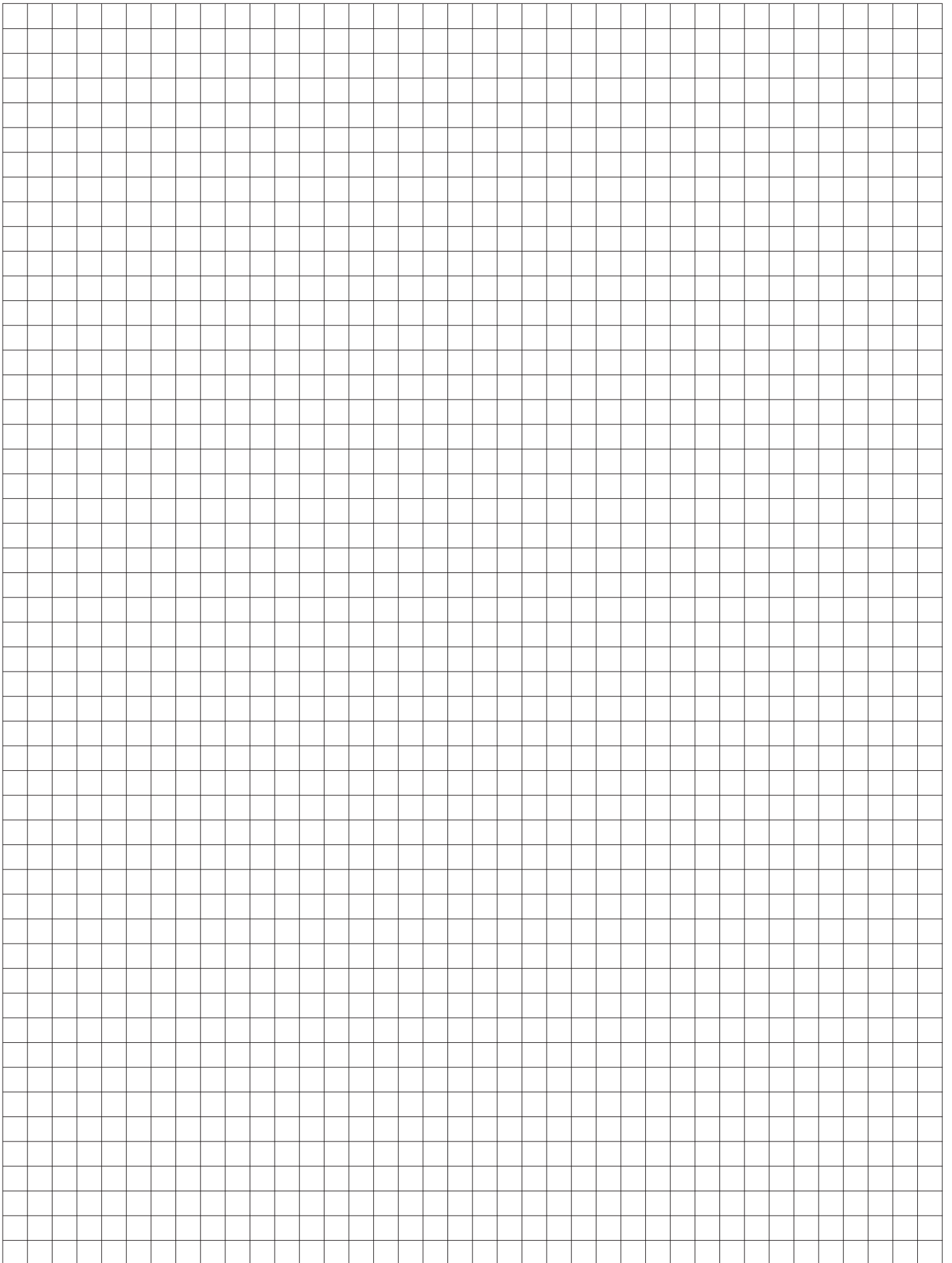
$$\pi \approx 3.14$$

or

$$\pi \approx \frac{22}{7}$$

Centimeters





MATHEMATICS

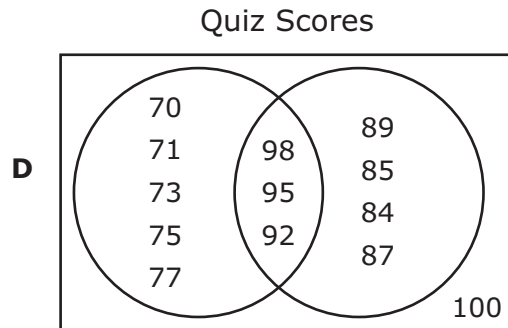
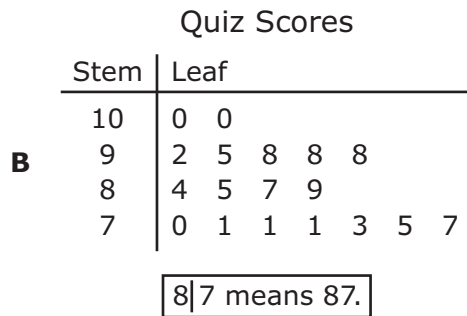
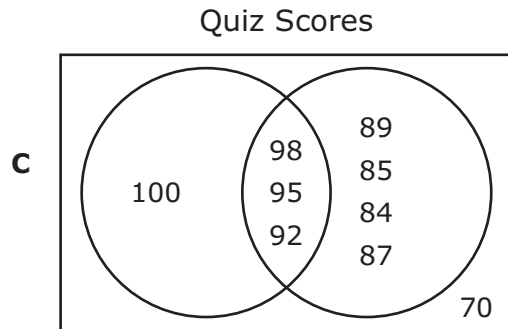
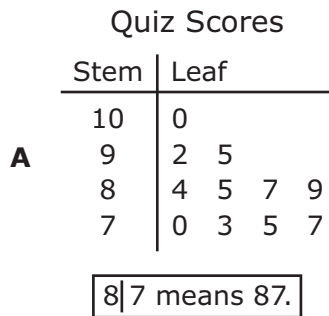
DIRECTIONS

Read each question carefully. For a multiple-choice question, determine the best answer to the question from the four answer choices provided. For a griddable question, determine the best answer to the question. Then fill in the answer on your answer document.

- 1 The quiz grades of the students in Mr. Flannigan’s math class are listed below.

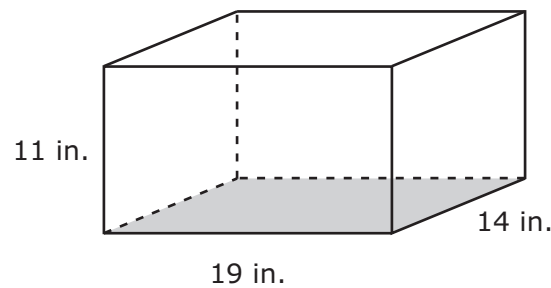
70, 71, 71, 71, 73, 75, 77, 84, 85, 87, 89, 92, 95, 98, 98, 98, 100, 100

Which of the following best represents this information?



- 2 Mrs. Rodríguez will make name tags for each of the 45 choir members and 30 orchestra members. The materials for each name tag cost \$0.44. What is the total cost of the materials Mrs. Rodríguez will use to make these name tags?
- F \$33.00
G \$75.00
H \$58.20
J \$49.80

- 3 A clear file box shaped like a rectangular prism is modeled below. The shaded part represents one base of the box.



A formula for finding the volume of a rectangular prism is $V = Bh$. Which equation can be used to find B , the area of the shaded base of the box in square inches?

- A $B = \frac{1}{2}(19)(14)$
B $B = 19 + 14$
C $B = (19)(14)$
D $B = 2(19) + 2(14)$

- 4 Matt has answered $\frac{20}{25}$ of the questions on a test. What percentage of the test questions has Matt answered?
- F** 20%
- G** 45%
- H** 95%
- J** 80%

-
- 5 The list below shows the number of weeks different songs stayed at the top of a music-ranking chart.

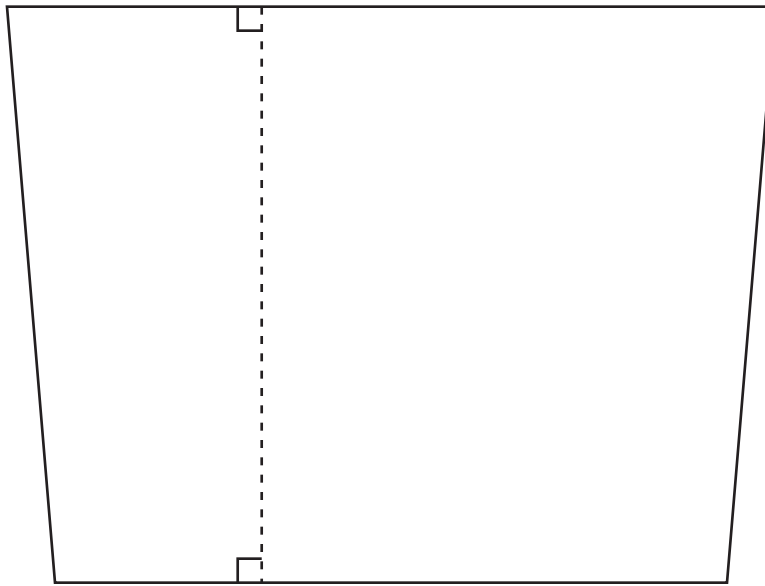
Music Ranking

Number of Weeks
5
10
9
9
2
5
5
3

What is the difference between the mode and the mean of these data?

- A** 1
- B** 3
- C** 6
- D** 5

- 6 Use the ruler provided to measure the dimensions of the figure below to the nearest half inch.



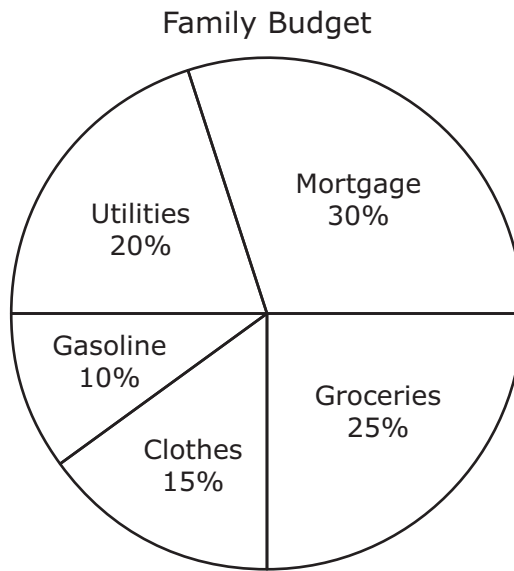
Which of the following is closest to the area of this figure in square inches?

- F 21 in.²
- G 22.50 in.²
- H 11.25 in.²
- J 42 in.²

-
- 7 Abe is buying taco shells for a party. There will be 13 adults and 17 children attending the party. He plans to make 3 tacos for each adult and 1 taco for each child. There are 8 taco shells in each package. What is the least number of packages of taco shells Abe will need to buy in order to have enough tacos for the people attending the party?

- A 7, because $(13 \times 3 + 17) \div 8 = 7$
- B 28, because $(13 \times 17 + 3) \div 8 = 28$
- C 80, because $(13 + 17) \times 8 \div 3 = 80$
- D 8, because $(13 + 17 \times 3) \div 8 = 8$

- 8 The circle graph below shows the percentages of a family budget used for different monthly expenses.



Which statement is supported by the data in the graph?

- F** The amount of money budgeted for utilities and gasoline combined is less than the amount budgeted for the mortgage.
- G** The amount of money budgeted for the mortgage is half the amount budgeted for clothes.
- H** The amount of money budgeted for groceries and clothes combined is twice the amount budgeted for utilities.
- J** The amount of money budgeted for gasoline and clothes combined is greater than the amount budgeted for groceries.

- 9 Which table contains the first five terms of the arithmetic sequence represented by the expression $5n + 6$, where n represents the position of a term in the sequence?

A

Position	1	2	3	4	5
Value of Term	7	8	9	10	11

C

Position	1	2	3	4	5
Value of Term	11	12	13	14	15

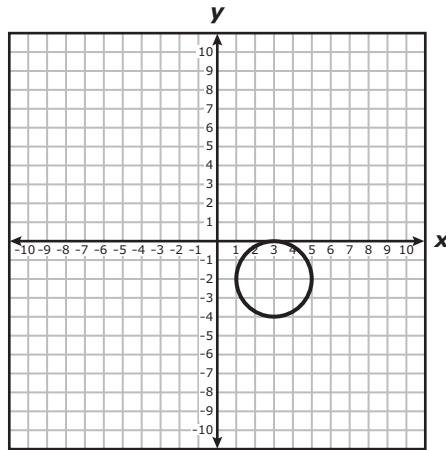
B

Position	1	2	3	4	5
Value of Term	5	10	15	20	25

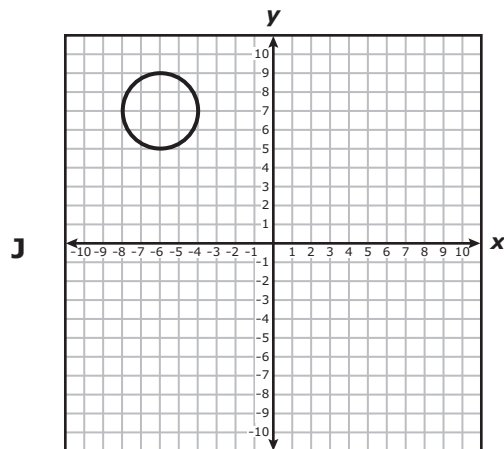
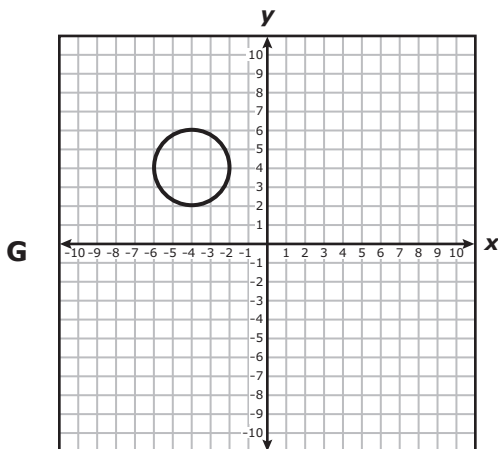
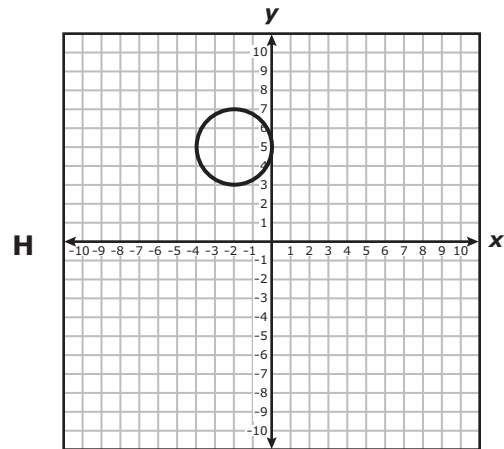
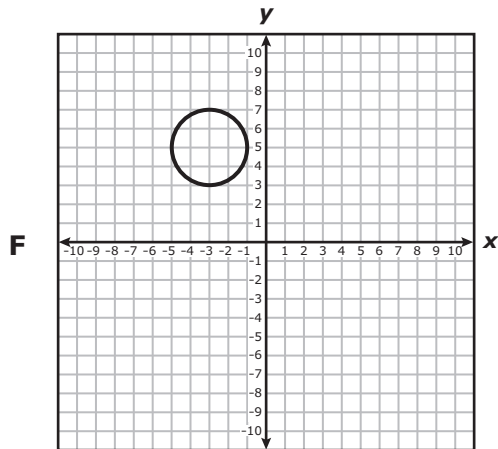
D

Position	1	2	3	4	5
Value of Term	11	16	21	26	31

10 Sal graphed a circle on the grid below.



Sal translated the circle 6 units to the left and 7 units up. Which grid shows the result of this translation?

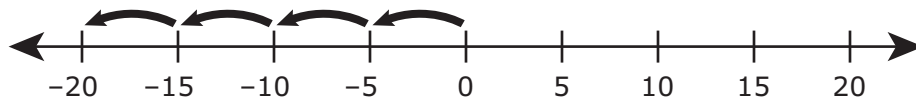


11 Which situation is best represented by the equation below?

$$7 = 127 - 5b$$

- A Of the 127 people attending a rugby game, 5 were at the concession stand, b were seated, and 7 were standing up and cheering. What is b , the number of attendees who were seated?
- B There were 7 players left over after 127 rugby players in a league were divided into 5 teams with b players on each team. What is b , the number of players on each team?
- C There were 5 players left over after 127 rugby players in a league were divided into 7 teams with b players on each team. What is b , the number of players on each team?
- D Of b people attending a rugby game, there were 7 people at the concession stand, 127 people who were seated, and 5 people who were standing up and cheering. What is b , the number of people attending the game?

12 Which expression is represented by the model below?



- F $-4 \cdot (-5)$
- G $4 \cdot (-5)$
- H $(-4) \cdot 5$
- J $4 \cdot 5$

- 13** The list below shows how many students attended a school dance in each of the past six years.

120, 132, 100, 150, 132, 140

Which measure of data should NOT be used to predict the number of students that will attend the dance this year?

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

-
- 14** Yael worked out at a gym for 2 hours. Her workout consisted of stretching for 21 minutes, jogging for 45 minutes, and lifting weights for the remaining amount of time. What percentage of Yael's workout was spent lifting weights?

- F** 55%
- G** 45%
- H** 66%
- J** 54%

15 At a restaurant, 42 people had breakfast on Saturday morning.

- $\frac{1}{7}$ of the people ate eggs only.
- $\frac{2}{3}$ of the people ate both pancakes and eggs.
- The remaining people ate pancakes only.

Which fraction represents the number of people who ate pancakes only?

A $\frac{4}{21}$

B $\frac{8}{21}$

C $\frac{17}{21}$

D $\frac{17}{42}$

16 Mr. Nelson sold 147 bags of popcorn and 216 bottles of water in 3 days. At this rate, how many more bottles of water than bags of popcorn will Mr. Nelson sell in 5 days?

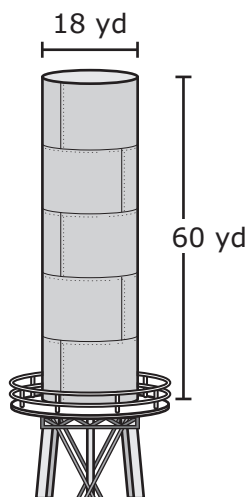
F 84

G 69

H 115

J Not here

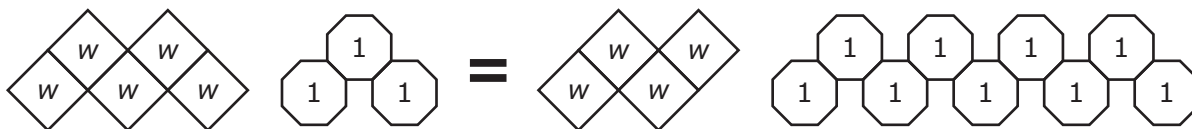
17 The dimensions of a cylindrical water tank are shown below.



Which of the following is the best estimate of the volume of this water tank?

- A 58,320 yd³
- B 3,240 yd³
- C 14,580 yd³
- D 19,440 yd³

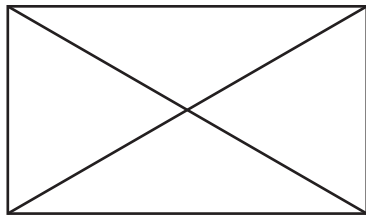
18 The equation $5w + 3 = 4w + 9$ is modeled below.



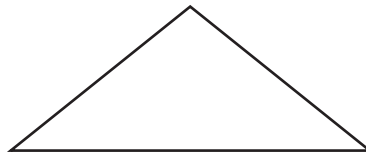
What value of w makes this equation true?

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

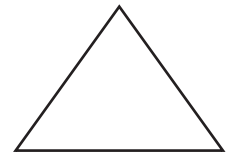
- 19 The top, front, and side views of a three-dimensional figure are shown below.



Top



Front



Side

Which figure has these views?

- A Rectangular prism
 - B Triangular prism
 - C Rectangular pyramid
 - D Triangular pyramid
-
- 20 A company predicts that this year's sales will be equivalent to 144% of last year's sales. Which value represents 144%?

F 14.4

G $1\frac{11}{25}$

H 1.56

J $14\frac{4}{5}$

21 Ms. Jacobs is a photographer. For each job she charges \$135 for the first hour she works and \$100 for each additional hour. Ms. Jacobs charged a total of \$535 for a job on Friday. Which equation can be used to determine h , the number of additional hours she worked on this job?

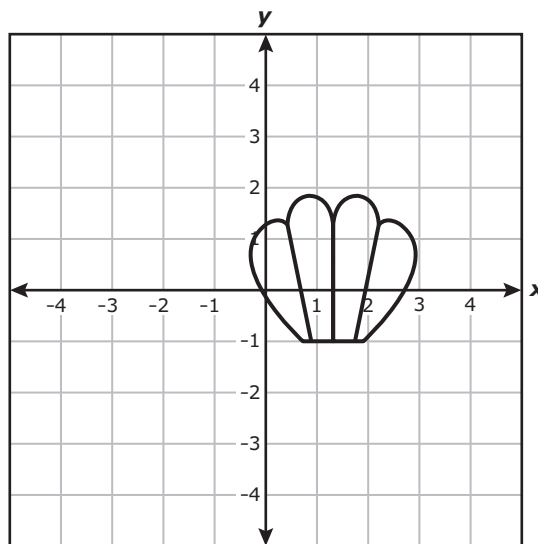
A $135h + 100 = 535$

B $135 + h + 100 = 535$

C $135 + 100h = 535$

D $135h = 535 + 100$

22 A picture of a seashell is shown on the coordinate grid below.



Which ordered pair represents a point located within the picture of the seashell?

F $(-1, 2)$

G $(-1, 0)$

H $(0, 2)$

J None of these

23 What is the value of the expression below?

$$6 + 5(9 \div 3)^2$$

- A** 36
- B** 51
- C** 99
- D** 11

24 Fazio is selecting a jersey. His choices are shown below.



Fazio chooses a jersey at random and then replaces it. He then selects a second jersey at random. What is the probability that Fazio selects a striped jersey both times?

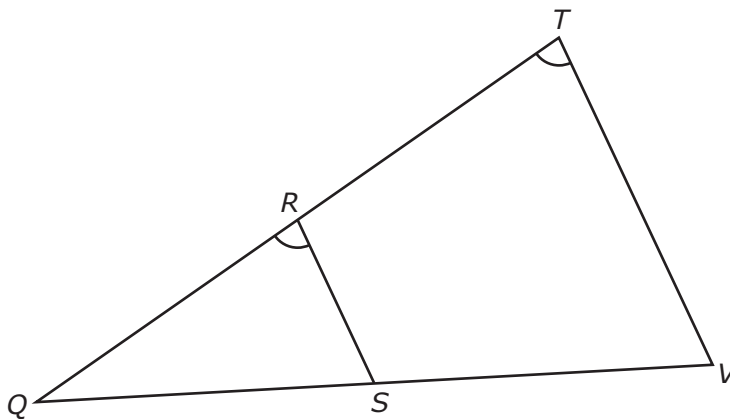
F $\frac{1}{100}$

G $\frac{1}{16}$

H $\frac{1}{25}$

J $\frac{1}{81}$

- 25 Triangle QRS and triangle QTV are similar.



Which equation must be true?

- A $\frac{TV}{RS} = \frac{TQ}{RQ}$
- B $\frac{TQ}{VQ} = \frac{TV}{TR}$
- C $\frac{VQ}{SQ} = \frac{RQ}{RS}$
- D $\frac{TV}{VQ} = \frac{RS}{RQ}$

26 Quadrilateral $WXYZ$ is described below.

- Line segment WX is parallel to line segment YZ .
- Line segment XY is the same length as line segment ZW .
- Line segment XY is not parallel to line segment ZW .

Which of the following describes quadrilateral $WXYZ$?

- F** Parallelogram
- G** Rectangle
- H** Scalene trapezoid
- J** Isosceles trapezoid

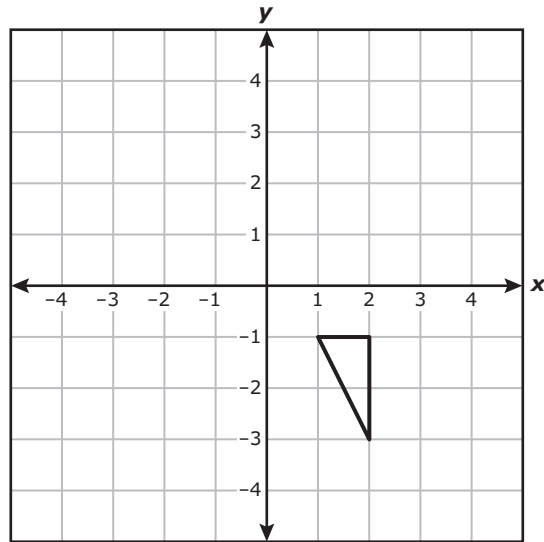
27 The list below shows the number of books returned to a library during each of 10 weeks.

393, 393, 496, 400, 458, 482, 491, 511, 507, 509

Which two measures of these data best describe the typical number of books that were returned to the library each week?

- A** Mean and median
- B** Mean and range
- C** Mode and median
- D** Mode and range

28 Becca drew a figure on the coordinate grid below.



She then translated the figure 3 units to the left and 1 unit down. Which ordered pair represents a point that lies on this image?

- F** $(0, -4)$
- G** $(-1, -1)$
- H** $(-1, -3)$
- J** $(-2, -1)$

- 29 The table below shows the enrollment in each of three schools in a town during four years.

School Enrollment

School	2007	2008	2009	2010	Total
Elementary	517	489	506	523	2,035
Middle school	356	403	412	431	1,602
High school	472	485	493	506	1,956

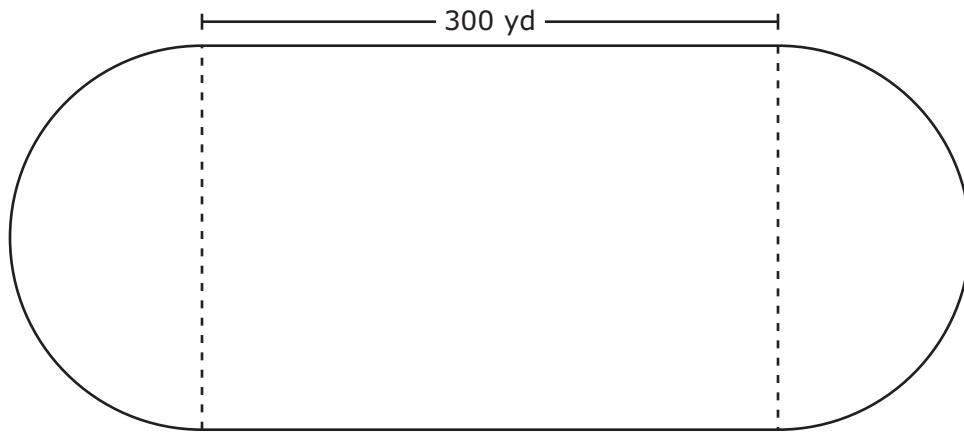
Which statement is supported by the information in the table?

- A The enrollment at the elementary school over the four years was 1,523 lower than the combined enrollment at the other two schools over the four years.
- B The enrollment at each of these schools increased every year.
- C The enrollment at the middle school varied the least during the four years.
- D The enrollment at the elementary school over the four years was less than $\frac{1}{3}$ of the combined enrollment of all three schools during the four years.

-
- 30 Every 2 days a scientist spends 1.25 hours observing dolphins and 3.5 hours observing sea lions. At this rate, how many total hours will the scientist spend observing dolphins and sea lions in 6 days?

- F 28.5 h
- G 14.25 h
- H 9.5 h
- J 23.5 h

- 31** The park modeled below consists of a rectangular area and 2 semicircular areas. The area of the rectangular part of the park is 60,000 square yards.



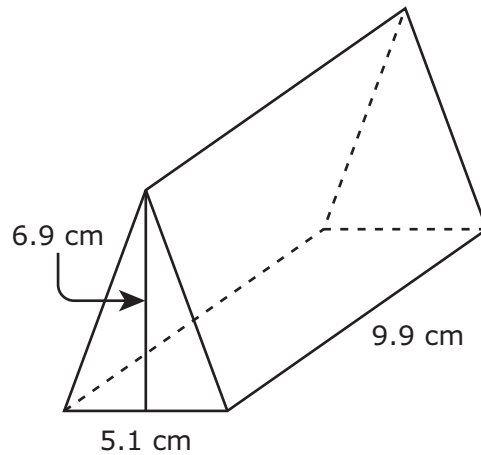
Which of the following is closest to the distance along the perimeter of this park?

- A** 628 yd
- B** 914 yd
- C** 1,856 yd
- D** 1,228 yd

-
- 32** A package of 25 wristbands costs \$5.25. At this rate, what is the cost of 1 wristband in dollars and cents?

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

- 33** The dimensions of a solid block of cheese in the shape of a triangular prism are shown below.



Which of these is the best estimate of the volume of the block of cheese in cubic centimeters?

- A** 175 cm^3
- B** 270 cm^3
- C** 350 cm^3
- D** 135 cm^3

-
- 34** Karen had 2 spools of wire. Each spool had $15\frac{7}{8}$ yards of wire. Karen used 3 yards of wire from each spool. How many yards of wire were left on the spools?

- F** $41\frac{5}{8}$ yards, because $\left(15\frac{7}{8} - 2\right) \cdot 3 = 41\frac{5}{8}$
- G** $10\frac{7}{12}$ yards, because $\left(15\frac{7}{8} \cdot 2\right) \div 3 = 10\frac{7}{12}$
- H** $25\frac{3}{4}$ yards, because $\left(15\frac{7}{8} - 3\right) \cdot 2 = 25\frac{3}{4}$
- J** $10\frac{15}{16}$ yards, because $\left(15\frac{7}{8} \div 2\right) + 3 = 10\frac{15}{16}$

35 Rosalind drew a rectangle with a width of 11 centimeters and a length of 14 centimeters. Which equation can be used to determine P , the perimeter of this rectangle in millimeters?

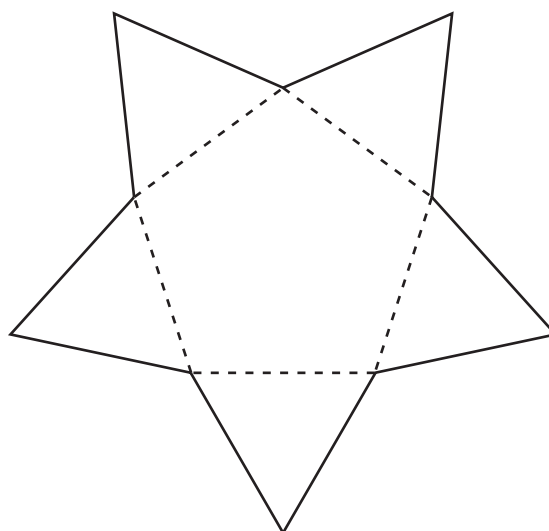
A $P = 10(2 \cdot 11 + 2 \cdot 14)$

B $P = 10(11 + 14)$

C $P = \frac{2 \cdot 11 + 2 \cdot 14}{10}$

D $P = \frac{11 + 14}{10}$

- 36** The net shown below can be folded along the dashed line segments to form a three-dimensional figure.



Which figure is best represented by this net?

- F** Hexagonal prism
 - G** Hexagonal pyramid
 - H** Pentagonal prism
 - J** Pentagonal pyramid
-
- 37** Xian plans to run 14 laps around a track. Each lap is 400 yards. So far Xian has run 1,680 yards around the track. What percentage of the run has Xian completed?
- A** 7%
 - B** 30%
 - C** 70%
 - D** 3%

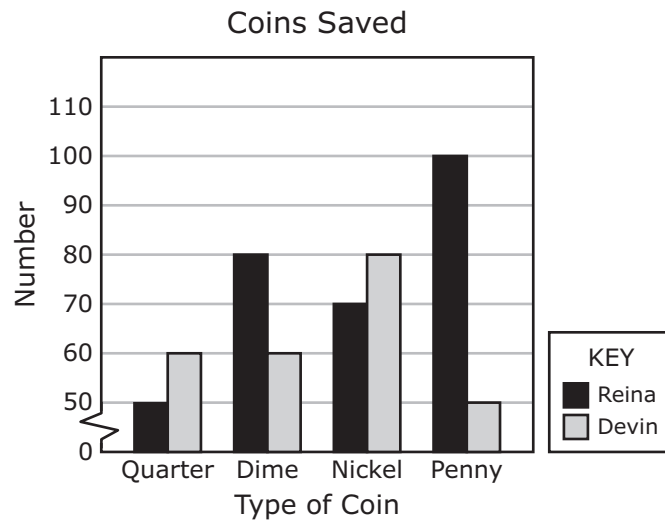
- 38** A crate is shaped like a rectangular prism. The crate is 1.2 feet wide, 3 feet long, and 4.5 feet tall. What is the volume of the crate in cubic feet?

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

-
- 39** There are 5 numbers in a set of data. There are no repeated numbers in the set. Which measure of data must represent a number in the set that is greater than 2 of the numbers in the set and less than 2 of the numbers?

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

- 40 The graph below shows the numbers and types of coins Reina and Devin have saved.



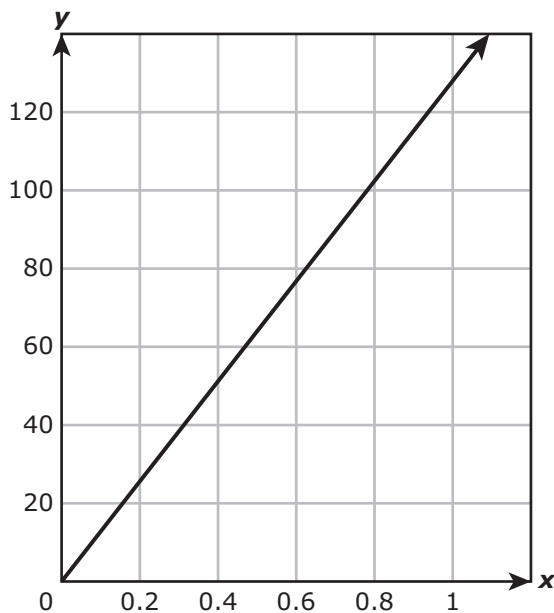
Which statement is best supported by the information in the graph?

- F** The combined value of all the coins Reina has saved is less than \$10.
- G** The value of the dimes Reina has saved is greater than the value of the nickels Devin has saved.
- H** The combined value of all the coins Devin has saved is less than \$25.
- J** The value of the quarters Devin has saved is twice the value of the quarters Reina has saved.

41 Cynthia started an exercise program. During the first week she walked $\frac{1}{2}$ mile every day. Every week she increased the distance she walked each day by $\frac{1}{2}$ mile. Which method can be used to determine the number of miles Cynthia walked each day during the ninth week of her exercise program?

- A** Add $\frac{1}{2}$ to the product of 9 and $\frac{1}{2}$
- B** Multiply 9 by $\frac{1}{2}$
- C** Multiply 9 by the sum of $\frac{1}{2}$ and $\frac{1}{2}$
- D** Add 9 and $\frac{1}{2}$

42 Which relationship is best represented by the graph below?



- F The number of seconds, x , in y hours
- G The number of hours, x , in y seconds
- H The number of gallons, x , in y fluid ounces
- J The number of fluid ounces, x , in y gallons

43 Jessica has a rectangular picture. The picture is similar to a rectangle that measures 4 inches by 6 inches. What could be the dimensions of Jessica's picture?

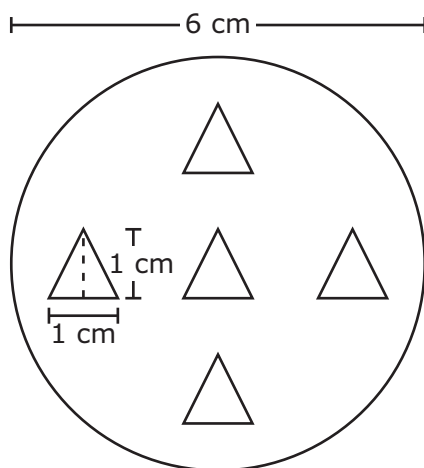
- A 8 in. by 10 in.
- B 2 in. by 3 in.
- C 5 in. by 7 in.
- D 12 in. by 14 in.

- 44** Two line segments intersect to form an angle that has a measure of 50.7° . What is the measure, in degrees, of an angle that is supplementary to this angle?

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

-
- 45** Elisa surveyed people in her neighborhood about whether they would like to have a swimming pool in their community park. Of those who responded, 65% were in favor of having a swimming pool. Based on these results, which statement could be true?
- A** Elisa surveyed 10 people, and 6 people were in favor of having a swimming pool.
 - B** Elisa surveyed 20 people, and 13 people were in favor of having a swimming pool.
 - C** Elisa surveyed 65 people, and 10 people were in favor of having a swimming pool.
 - D** Elisa surveyed 13 people, and 5 people were in favor of having a swimming pool.

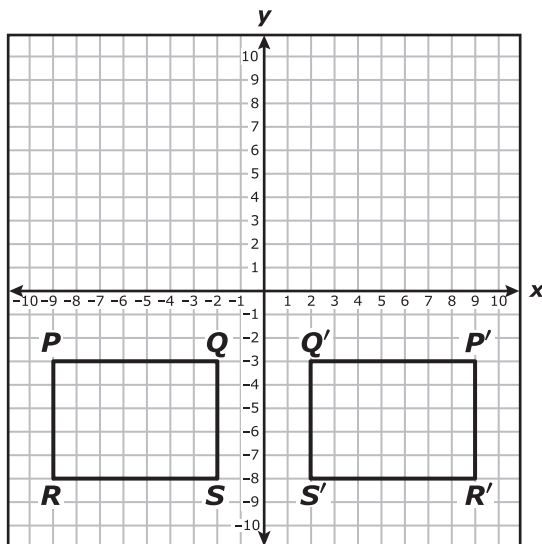
- 46** One of the tokens for a board game is a circle containing 5 congruent triangles, as modeled below.



Which measurement is closest to the area in square centimeters of the token not covered by the triangles?

- F** 2.5 cm^2
- G** 28.27 cm^2
- H** 110.6 cm^2
- J** 25.76 cm^2
-
- 47** The temperature at 7 P.M. was 45 degrees Fahrenheit. From 7 P.M. to 11 P.M. the temperature decreased 5 degrees each hour. Which equation can be used to find t , the temperature at 11 P.M.?
- A** $t = 45 - 5(11 - 7)$
- B** $t = 45 - 5(11 + 7)$
- C** $t = 45 \div 5(11 - 7)$
- D** $t = 45 + 5(11 - 7)$

- 48 Figure $PQSR$ and figure $P'Q'S'R'$ are shown on the coordinate grid below.



Which statement describes how figure $PQSR$ was transformed to form the image $P'Q'S'R'$?

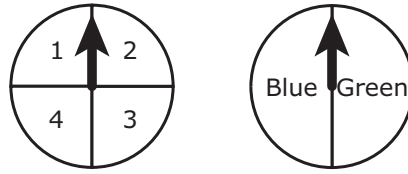
- F A translation across the x -axis
- G A reflection across the x -axis
- H A translation across the y -axis
- J A reflection across the y -axis

-
- 49 Andrew plays on a basketball team. In two games he scored $\frac{2}{5}$ of the total number of points his team scored. His team scored 55 points in the first game and 35 points in the second game. What was the number of points Andrew scored in these two games?

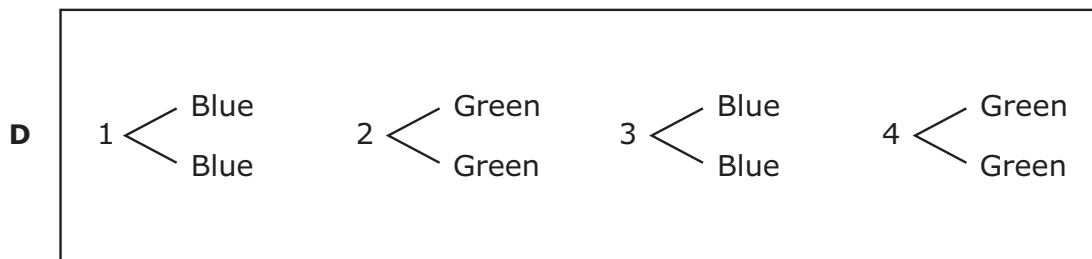
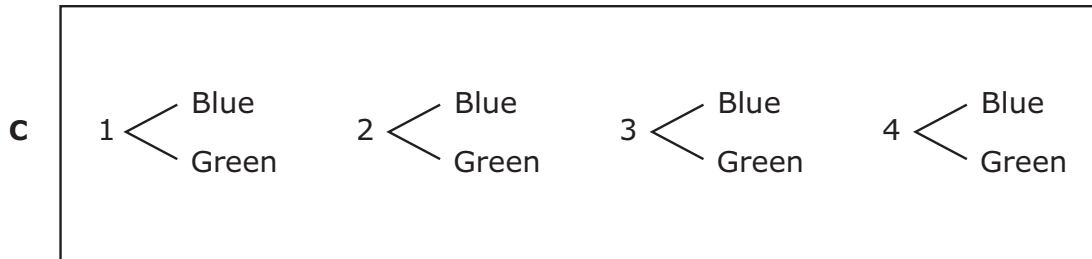
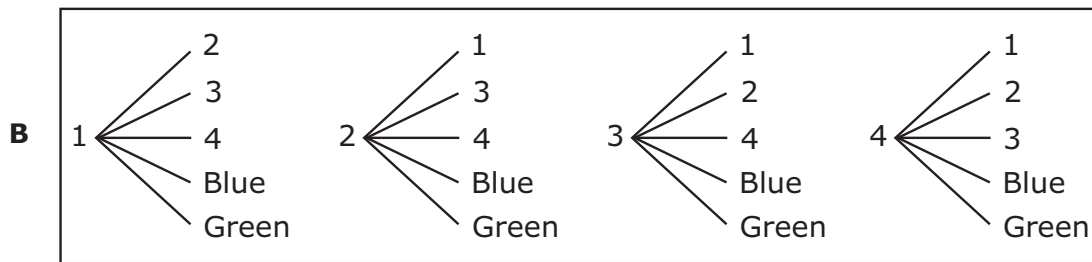
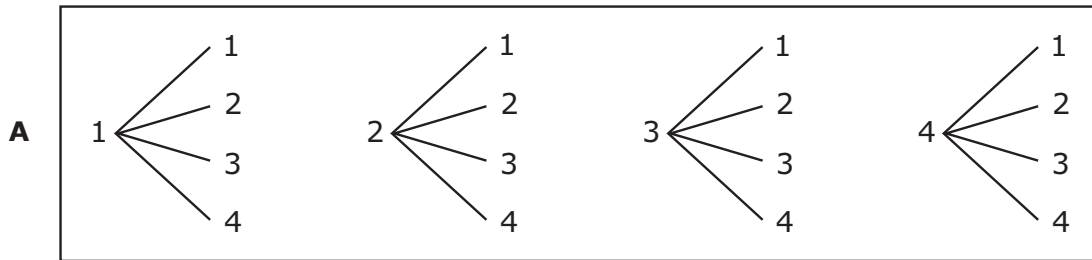
- A 18
- B 20
- C 36
- D 90

- 50** Marcella bought a 25-ounce bottle of olive oil for \$5.88. She used 60% of the olive oil in two weeks. Which of the following is closest to the cost of the oil she used?
- F** \$0.24
 - G** \$0.39
 - H** \$2.35
 - J** \$3.53

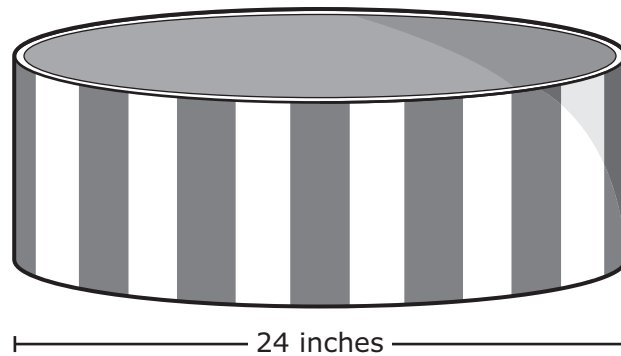
51 The arrow on each spinner shown below will be spun one time.



Which of the following diagrams shows all the possible outcomes when each arrow is spun once?



- 52** A hatbox in the shape of a cylinder is modeled below. The diameter of the cylinder is 24 inches. The height of the cylinder is 8 inches.



The volume of a cylinder can be found by using the formula $V = Bh$. Which expression can be used to determine B , the area of the base of this hatbox in square inches?

- F** $(24)^2\pi$
- G** $(12)^2\pi$
- H** $8^2 \cdot 12$
- J** $12^2 \cdot 8$
-
- 53** Freida drove 20 miles in 24 minutes. At this rate, how many miles did she drive in 6 minutes?
- A** 1.2 mi
- B** 7.2 mi
- C** 5 mi
- D** 2 mi

54 Students in Mrs. Doyle's classes use $\frac{3}{4}$ of a bottle of hand sanitizer every week. Which expression can be used to find how many bottles of hand sanitizer the students will use in 12 weeks?

F $12 \times \frac{3}{4}$

G $12 + \frac{3}{4}$

H $12 - \frac{3}{4}$

J $12 \div \frac{3}{4}$

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



**STAAR
GRADE 7
Mathematics
April 2014**