

**GRADE 5
Mathematics**

Administered March 2016

RELEASED

STAAR GRADE 5 MATHEMATICS REFERENCE MATERIALS



PERIMETER

Square

$$P = 4s$$

Rectangle

$$P = 2l + 2w$$

AREA

Square

$$A = s \times s$$

Rectangle

$$A = l \times w$$

or

$$A = bh$$

VOLUME

Cube

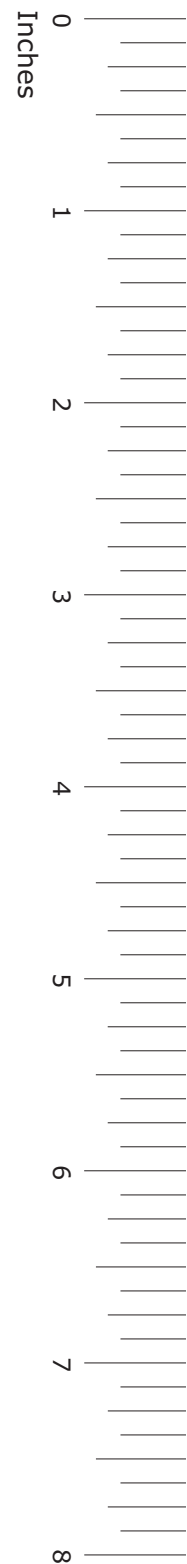
$$V = s \times s \times s$$

Rectangular prism

$$V = l \times w \times h$$

or

$$V = Bh$$



STAAR GRADE 5 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

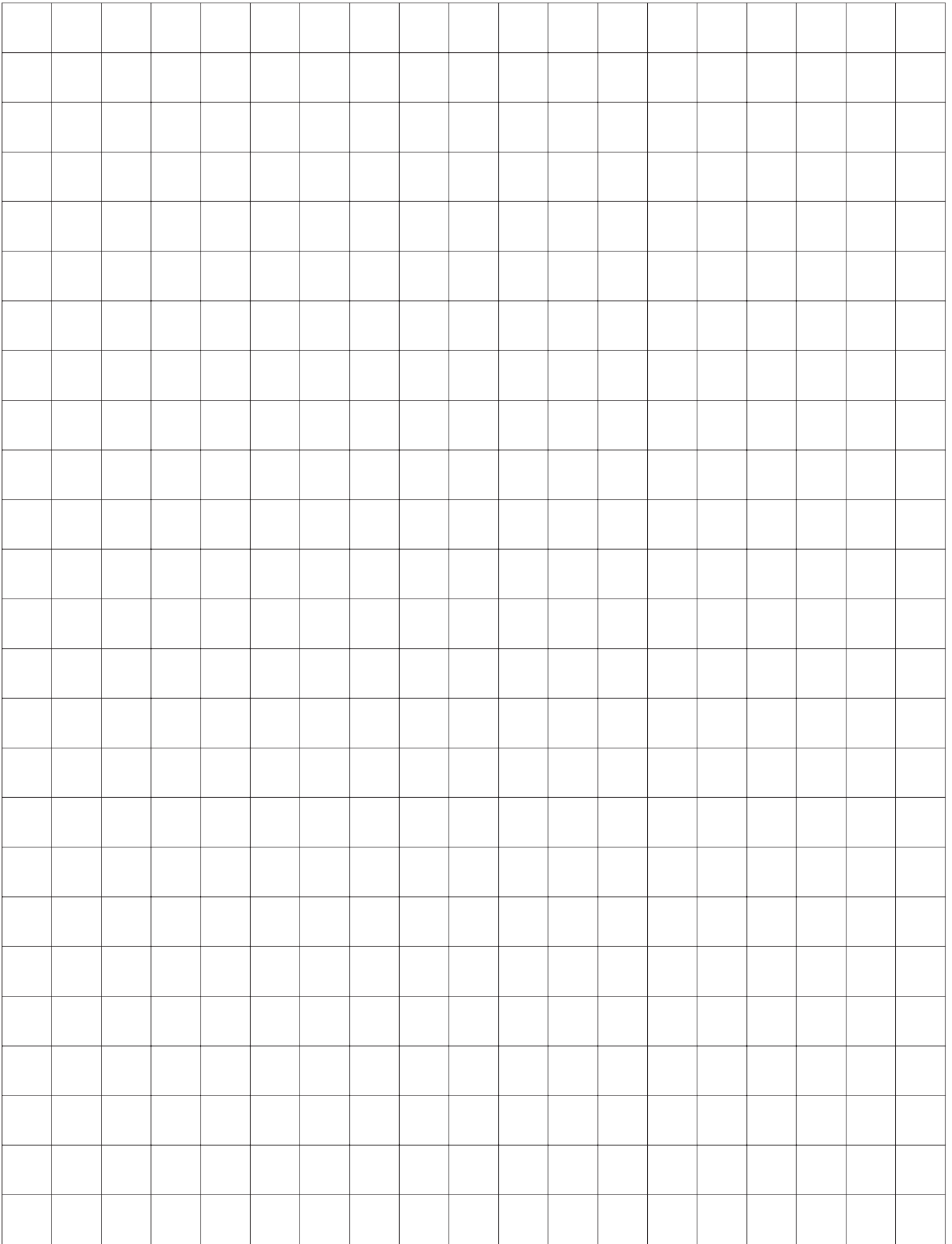
1 ton (T) = 2,000 pounds (lb)

1 pound (lb) = 16 ounces (oz)

Metric

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

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



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.

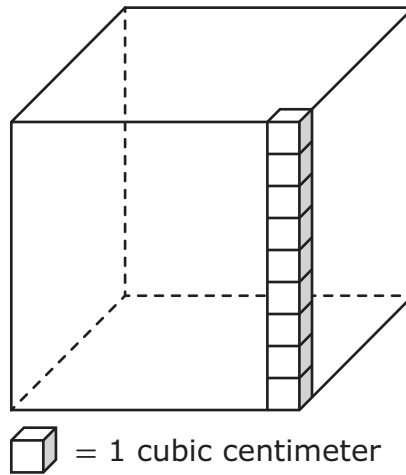
1 A computer rounded the number 129.257 to the nearest hundredth. What is this number rounded to the nearest hundredth?

- A 100
 - B 129.30
 - C 130
 - D 129.26
-

2 Mr. Márquez had 123 eggs in a refrigerator in his restaurant. He put 32 more cartons of eggs in the refrigerator. Each carton contained 18 eggs. Which of these is the best estimate of the number of eggs Mr. Márquez now has in his refrigerator?

- F 600
- G 400
- H 700
- J 900

- 3 Rebekah is filling a cube-shaped box with small cubes. The volume of each of these cubes is 1 cubic centimeter. She has already put some of these cubes into the box, as shown in the model.



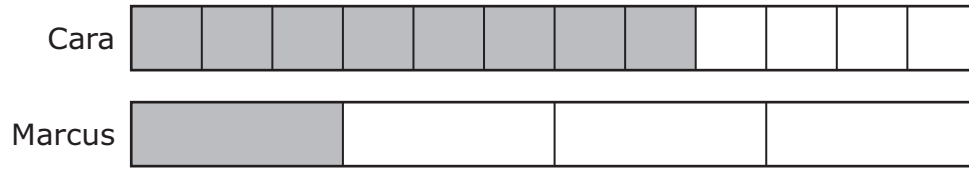
What is the total number of small cubes that will fit in the box?

- A 729
- B 81
- C 36
- D 27

- 4 A rope was 14.35 inches long. Megan cut the rope into 7 pieces of equal length. What was the length of each piece of rope in inches?
- F 2.5 in.
 - G 2.35 in.
 - H 2.05 in.
 - J 2.55 in.

-
- 5 A bank received a check for two thousand, six hundred nine dollars and seventy-five cents. How is this number written in expanded notation?
- A $(2 \times 1,000) + (6 \times 100) + (9 \times 10) + (7 \times 0.01) + (5 \times 0.01)$
 - B $(2 \times 1,000) + (6 \times 100) + (9 \times 1) + (7 \times 0.1) + (5 \times 0.01)$
 - C $(2 \times 1,000) + (6 \times 10) + (9 \times 1) + (7 \times 1) + (5 \times 1)$
 - D $(2 \times 1,000) + (6 \times 100) + (9 \times 1) + (7 \times 0.01) + (5 \times 0.001)$

- 6 Cara and Marcus shared a candy bar. The models are shaded to show the fraction of the candy bar each of them ate.



What fraction of the candy bar did Cara and Marcus eat altogether?

- F $\frac{11}{12}$
- G $\frac{9}{16}$
- H $\frac{1}{12}$
- J $\frac{9}{24}$
-

- 7 The lengths of two insects are given below.

- Ladybug: 10 millimeters
- Walking stick: 30 centimeters

What is the difference in length of these two insects in millimeters?

- A 70 mm
- B 20 mm
- C 290 mm
- D 2,990 mm

- 8 The table shows the time in seconds it took four swimmers to complete a race.

Race Times

Swimmer	One	Two	Three	Four
Time (seconds)	26.15	26.5	26.1	26.05

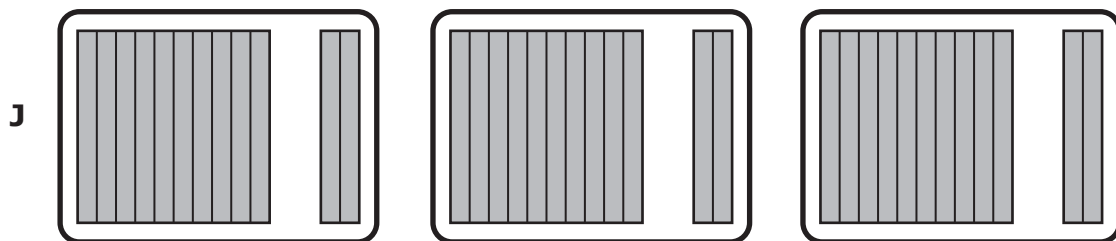
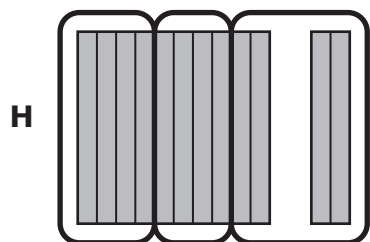
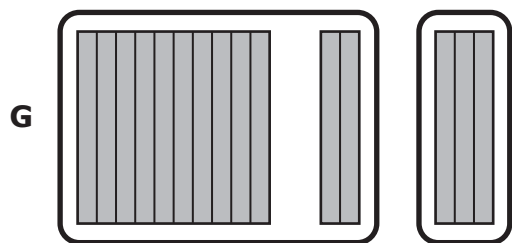
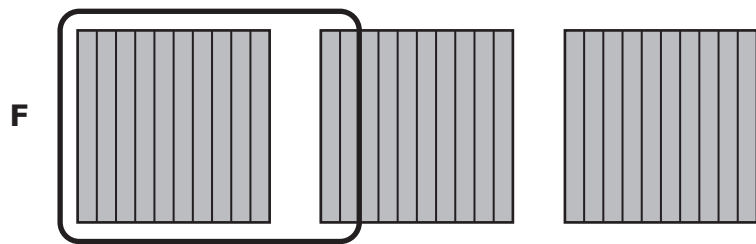
Which inequality correctly compares two of these race times?

- F $26.5 > 26.05$
 - G $26.15 > 26.5$
 - H $26.1 < 26.05$
 - J $26.15 < 26.1$
-

- 9 Scott drank 3.5 bottles of water yesterday. Each bottle contained 1.2 pints of water. What was the number of pints of water Scott drank yesterday?

- A 4.7 pints
- B 4.2 pints
- C 4.1 pints
- D 42 pints

10 Which model represents $1.2 \div 3$?

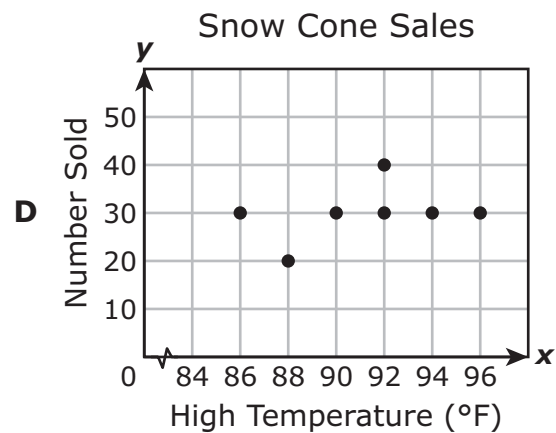
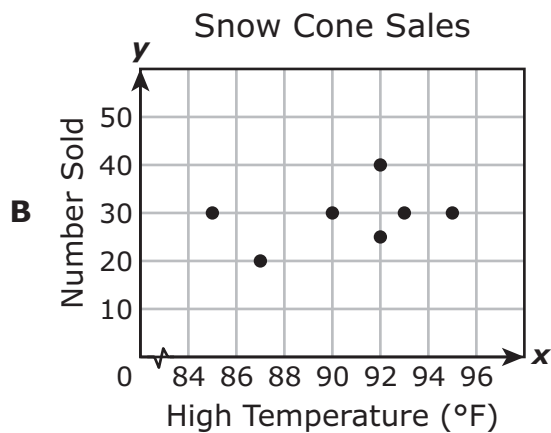
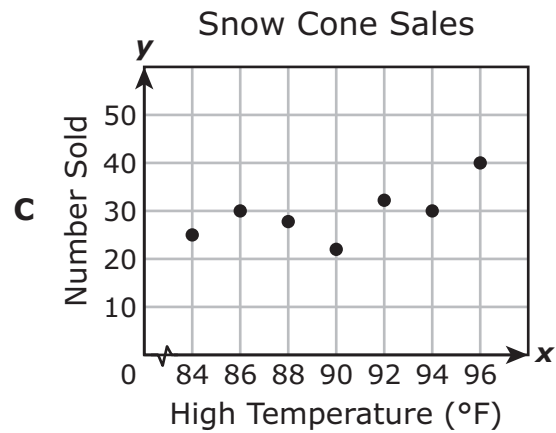
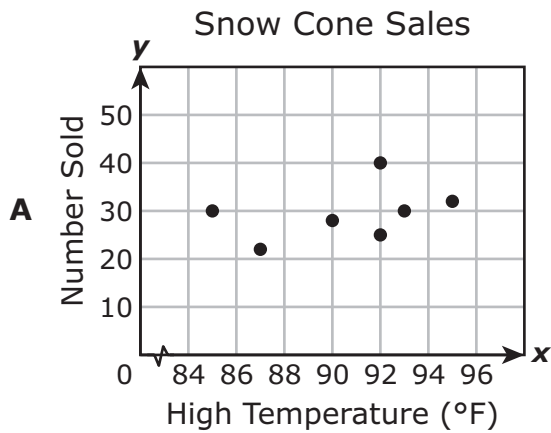


- 11 The table shows the high temperatures and the numbers of snow cones sold at a snack bar on seven days.

Snow Cone Sales

High Temperature (°F)	Number Sold
92	25
85	30
90	28
87	22
95	32
93	30
92	40

Which scatterplot best represents the data in the table?



- 12** Raymond used 42 cubes to build the first layer of a rectangular prism. The edge length of each cube was 1 inch. The finished prism had a total of 7 layers. What is the volume of Raymond's prism in cubic inches?

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

-
- 13** Cyril put a total of $\frac{1}{8}$ lb of gravel into 6 fish tanks. He put the same amount of gravel into each tank. How many pounds of gravel did Cyril put into each fish tank?

- A** $\frac{6}{8}$ lb
- B** $\frac{1}{6}$ lb
- C** $\frac{1}{48}$ lb
- D** $\frac{6}{48}$ lb

14 Mr. Anderson had 185 pieces of wood. He sold 25 pieces of wood to his neighbor and stacked the rest of the wood into piles around his house. Each pile of wood contained 40 pieces of wood. Which equation can be used to find p , the number of piles of wood Mr. Anderson made?

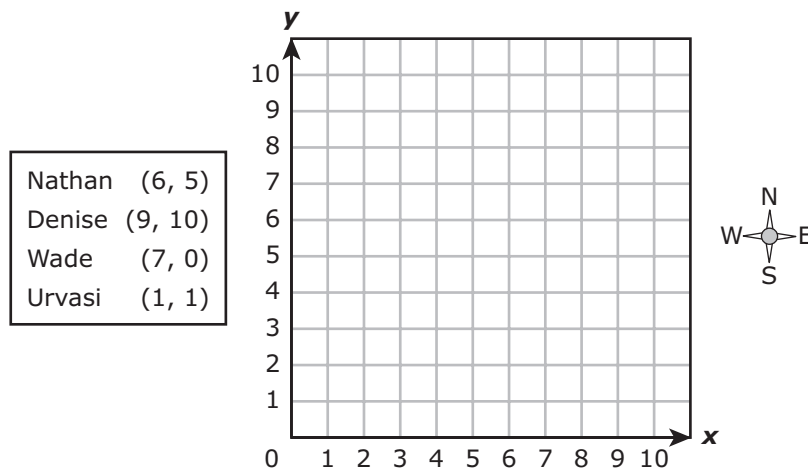
F $p = (185 + 25) + 40$

G $p = (185 - 25) - 40$

H $p = (185 + 25) \times 40$

J $p = (185 - 25) \div 40$

15 The ordered pairs below represent the location of four people.



Paula is located at (7, 7). Based on this information, which statement is true?

A Paula is located 1 unit south and 2 units east from Nathan.

B Paula is located 7 units east from Wade.

C Paula is located 3 units south and 2 units west from Denise.

D Paula is located 6 units west from Urvasi.

16 Which table could represent the equation $y = 0.1x$?

F

x	y
5	50
10	100
15	150
20	400
40	400

H

x	y
5	5.1
10	10.1
15	15.1
20	20.1
40	40.1

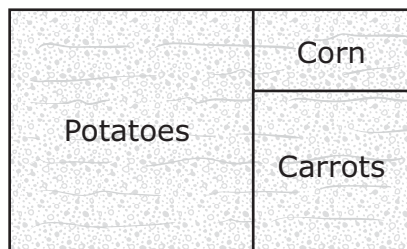
G

x	y
5	0.5
10	1.0
15	1.5
20	2.0
40	4.0

J

x	y
5	0.5
10	0.6
15	0.7
20	0.8
40	1.2

- 17** Phoebe divided her rectangular vegetable garden into three sections, as shown in the drawing below.



- The potato section is a square with a side length of 7 meters.
- The carrot section is a square with a side length of 5 meters.

What is the area, in square meters, of the corn section of Phoebe's garden?

- A** 10 square meters
- B** 14 square meters
- C** 84 square meters
- D** 35 square meters

- 18** Last month Jim drove his car 2,718.3 miles. That brought the car's total mileage to 87,416 miles. What was the car's total mileage before last month?
- F** 84,697.7 mi
- G** 85,302.7 mi
- H** 89,124.3 mi
- J** 90,134.3 mi
-

- 19** The stem and leaf plot shows the scores of eight people at a dance contest.

Dance Contest Scores

Stem	Leaf
6	8 9 9
7	5
8	2 7
9	5 7

6|8 means 6.8.

What is the difference between the highest score and the lowest score?

- A** 2.8
- B** 2.7
- C** 2.9
- D** 2.6

- 20 Seth's homework assignment is to write factor pairs that contain only composite numbers. Seth wrote four factor pairs for the number 132, as shown below.

$$6 \times 22$$

$$11 \times 12$$

$$3 \times 44$$

$$2 \times 66$$

Which of Seth's factor pairs contains only composite numbers?

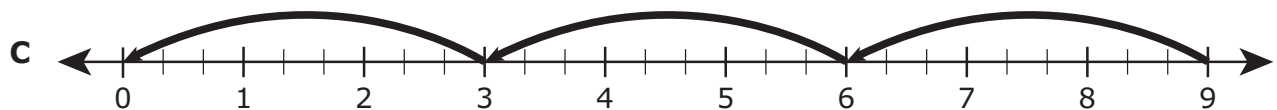
F 6×22

G 11×12

H 3×44

J 2×66

-
- 21 Which number line best models the expression $3 \div \frac{1}{3}$?



22 So far this month Nancy has the expenses and income shown in the chart.

Nancy's Current Budget	
<u>Expenses</u>	<u>Income</u>
Clothes\$40	Lawn mowing\$30
Food\$60	Babysitting\$50
Movie tickets\$30	Car washing\$25
	Garage sale\$35

Nancy wants to buy some music online but also have a balanced budget. Based on Nancy's current budget, what is the greatest amount of money she can spend on music?

- F** \$10
- G** \$35
- H** \$140
- J** \$5

23 Joshua compared the values of these decimals.

0.06 0.6 0.006 0.060

Which statement correctly compares two of these numbers?

- A** $0.6 < 0.06$
- B** $0.006 > 0.6$
- C** $0.6 = 0.06$
- D** $0.060 = 0.06$

- 24** The table shows the population of three Texas counties. The population of Gray County is missing.

Population

County	Population
Anderson	58,308
Dallas	2,416,014
Brazos	197,632
Gray	

The population of Gray County is 35,553 less than the population of Anderson County. What is the combined population of these four counties?

- F** 2,694,709
- G** 2,707,507
- H** 2,695,209
- J** 2,765,815

- 25** At a clothing store, Zoey bought 2 shirts for \$7.25 each and 2 pairs of jeans for \$24 each. She used a coupon for \$10 off the total price of the clothes. The discounted price of the clothes Zoey bought can be found using this expression.

$$[2(7.25) + 2(24)] - 10$$

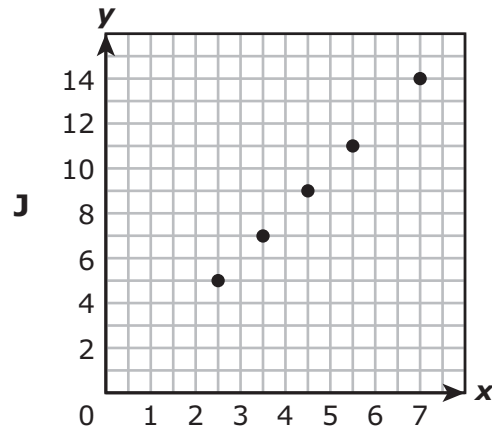
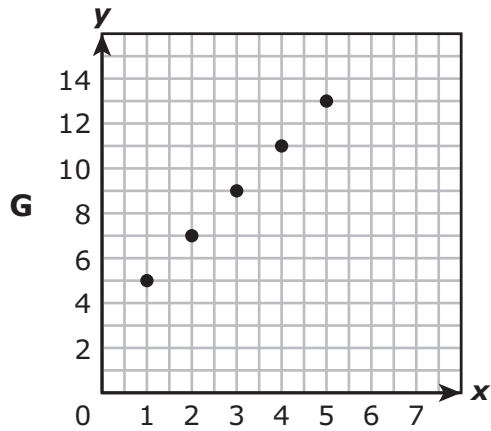
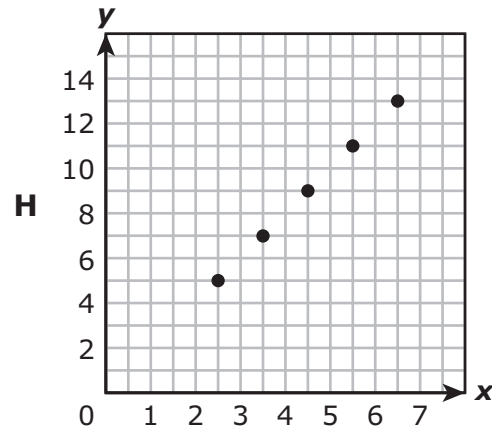
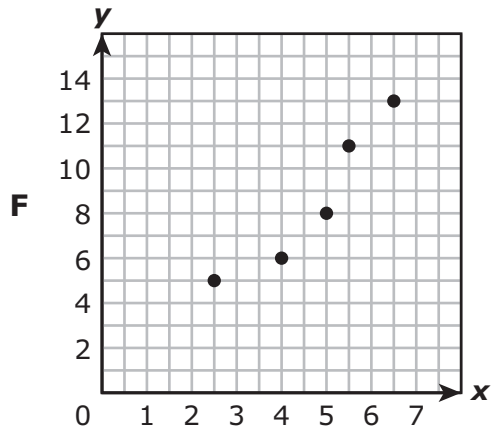
What is the discounted price in dollars and cents of the clothes Zoey bought?

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

26 A table of ordered pairs is shown.

x	$2\frac{1}{2}$	$3\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$	$6\frac{1}{2}$
y	5	7	9	11	13



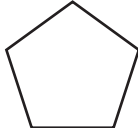
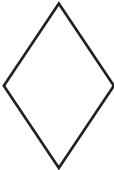




Which graph represents these ordered pairs?



- 27 A company makes 625 cell phone cases each day. How many cell phone cases does the company make in 31 days?
- A 18,375
 B 1,490
 C 2,500
 D 19,375

- 28 Rachel classified shapes based on the types of angles they had. The table shows her classifications.

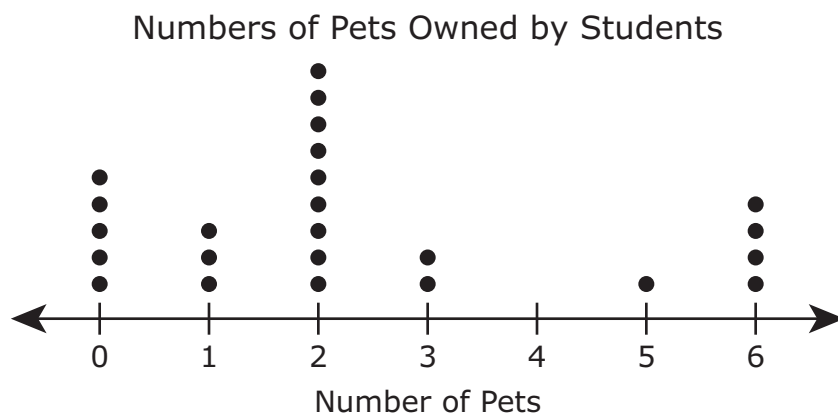
Angle Types

Right Angles Only	Acute Angles Only	Obtuse Angles Only	Both Acute and Obtuse Angles
 Shape 1	 Shape 3	 Shape 5	 Shape 7
 Shape 2	 Shape 4	 Shape 6	 Shape 8

Which shape was **not** classified correctly?

- F Shape 4
 G Shape 5
 H Shape 7
 J Shape 8

29 The dot plot shows the numbers of pets that the students in a class own.



What fraction of the students in this class have two or more pets?

- A $\frac{1}{3}$
- B $\frac{7}{24}$
- C $\frac{2}{3}$
- D $\frac{3}{8}$

- 30** The table shows the number of hats made at a factory during three weeks in February. The number of hats made in Week 4 is represented by n .

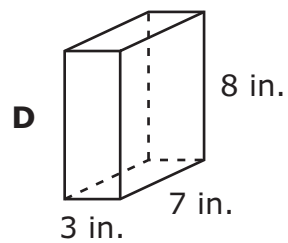
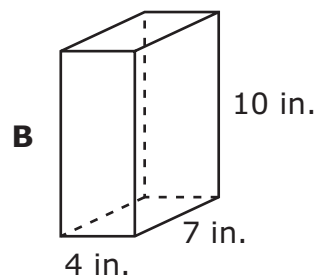
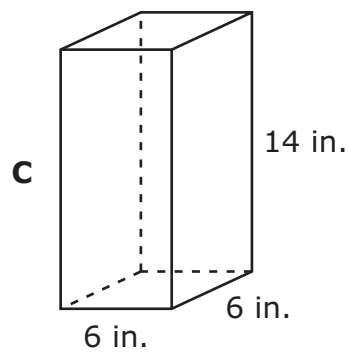
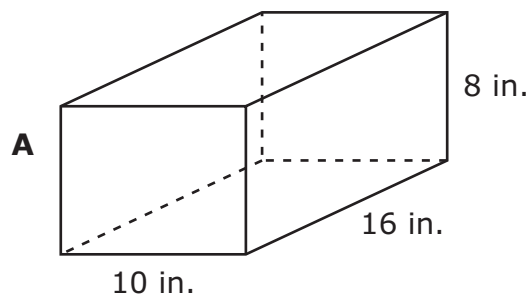
Hats

Week	Number of Hats
1	562,937
2	607,822
3	492,375
4	n

The total number of hats made at the factory in February was 2,148,431. Which equation represents this situation?

- F** $2,148,431 = (562,937 + 607,822 + 492,375) + n$
- G** $2,148,431 = (562,937 + 607,822 + 492,375) - n$
- H** $2,148,431 = (562,937 + 607,822 + 492,375) \times n$
- J** $2,148,431 = (562,937 + 607,822 + 492,375) \div n$

31 Duane packed some books in a box shaped like a rectangular prism. The volume of the box is 168 cubic inches. Which model could represent Duane's box?



- 32 Customers at a gift shop receive free stickers for every T-shirt they buy. The graph shows the relationship between x , the number of T-shirts customers buy, and y , the number of stickers customers receive.



Which table also represents this relationship?

Gift Shop

F

Number of T-Shirts Bought	Number of Free Stickers
6	6
7	7
8	8
9	9

Gift Shop

H

Number of T-Shirts Bought	Number of Free Stickers
6	3
10	5
14	7
18	9

Gift Shop

G

Number of T-Shirts Bought	Number of Free Stickers
6	12
7	14
8	16
9	18

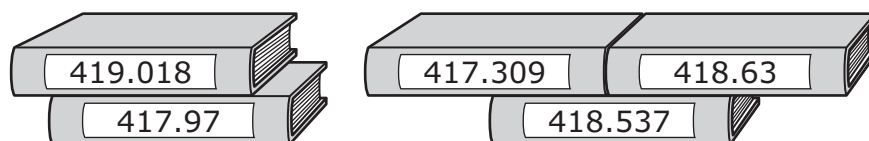
Gift Shop

J

Number of T-Shirts Bought	Number of Free Stickers
6	18
10	30
14	42
18	54

- 33** Tara has a box of 908 beads for making bracelets. She wants to put 15 beads on each bracelet she makes. What is the greatest number of bracelets Tara can make with these beads?
- A** 61
 - B** 70
 - C** 60
 - D** 68

-
- 34** Books in a library are arranged by their Dewey decimal number. The Dewey decimal numbers for five books are shown in the picture.



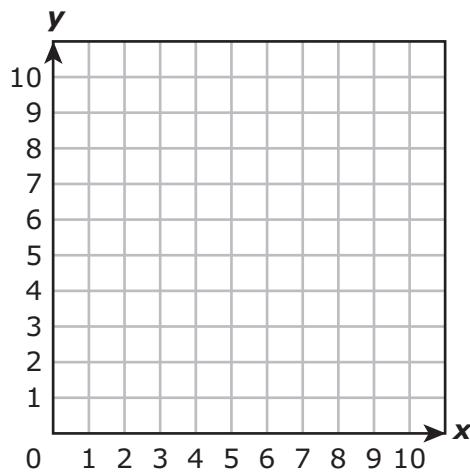
Lana will put these five books in order from the least number to the greatest number. Which book will be in the fourth position?

- F** 419.018
- G** 417.97
- H** 418.537
- J** 418.63

- 35** Marsha bought a birthday card for \$2.86 and a pen for \$1.57. She paid with a \$20 bill. How much change should Marsha have received?
- A** \$15.57
 - B** \$24.43
 - C** \$17.77
 - D** \$16.57
-

- 36** The ordered pairs below represent three vertices of a rhombus.

$(4, 9), (6, 7), (4, 5)$



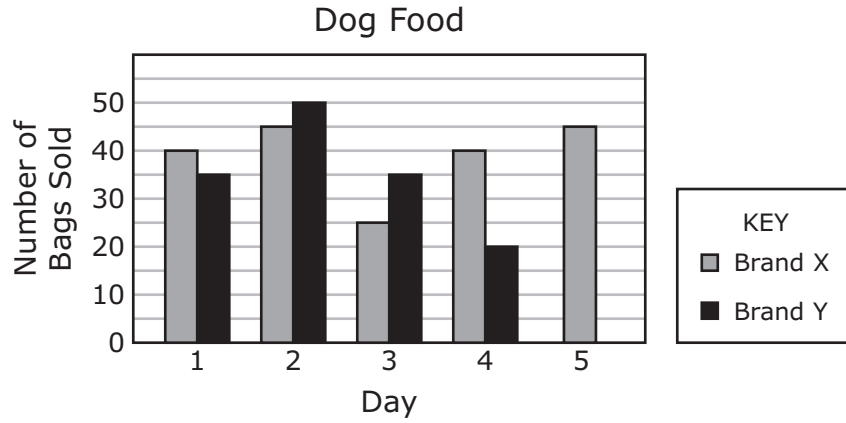
Which ordered pair could represent the fourth vertex of this rhombus?

- F** $(7, 2)$
- G** $(9, 7)$
- H** $(2, 9)$
- J** $(2, 7)$

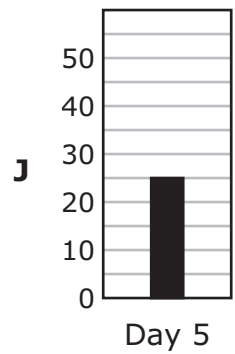
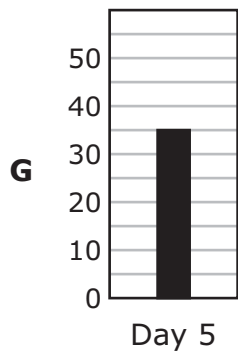
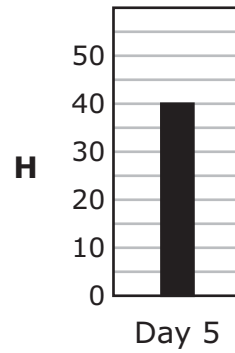
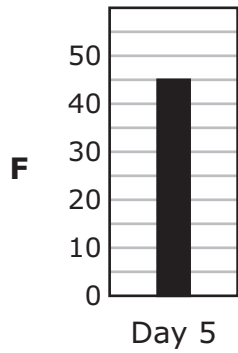
- 37** Amy cut 32 feet of chain into pieces that were each $\frac{1}{4}$ ft long. How many of these pieces did Amy have after cutting the chain?

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

- 38 The bar graph shows the numbers of bags of two brands of dog food that were sold at a store. One bar for Day 5 is missing from the graph.



The number of bags of Brand Y dog food sold on these five days was 175. Which bar represents the data for Day 5 for Brand Y?



- 39** Freddy exercised 2.5 hours per day on 4 days last week. He burned 330 calories per hour while exercising. How many calories did Freddy burn by exercising last week?
- A** 2,640 calories
 - B** 26,400 calories
 - C** 3,300 calories
 - D** 33,000 calories
-

- 40** A student graphs a point that is represented by the ordered pair (3, 0). In this ordered pair, what does the number 3 indicate?
- F** The point is 3 units above 0 on the x -axis.
 - G** The point is 3 units above 0 on the y -axis.
 - H** The point is 3 units to the right of 0 on the y -axis.
 - J** The point is 3 units to the right of 0 on the x -axis.
-

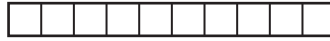
- 41** This equation can be used to find b , the number of dollars Mrs. Colton earned as a sales bonus last week.

$$b = 429 - (39 \times 9)$$

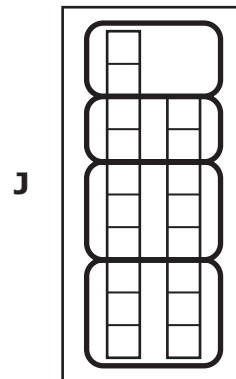
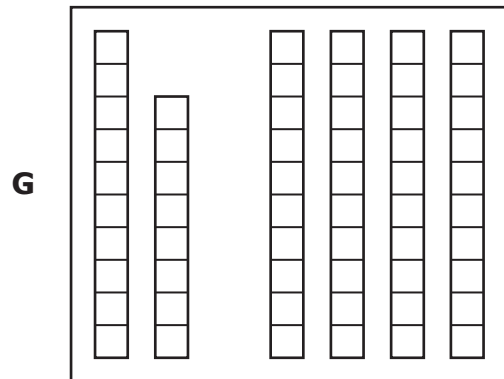
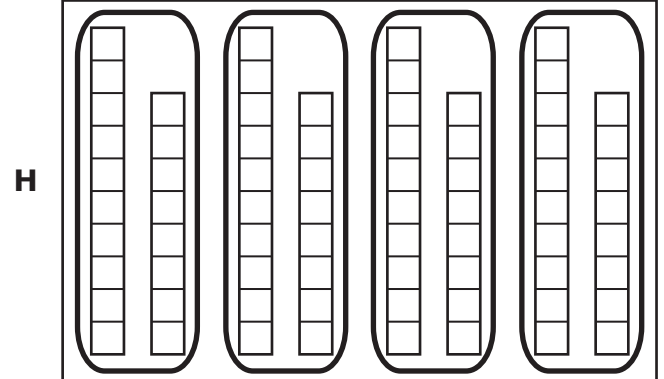
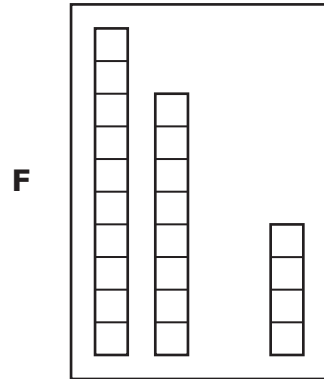
What was the amount of Mrs. Colton's bonus?

- A** \$20
- B** \$78
- C** \$158
- D** \$138

42 Marisela used this model to represent 1 whole.

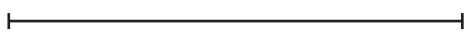


Which model represents 1.8×4 ?



43 A square has a perimeter of 20 centimeters and an area of 25 square centimeters. Use the ruler provided to measure the line segments below to the nearest centimeter. Which line segment could represent a side of this square?

A 

B 

C 

D 

44 What is the quotient when 0.75 is divided by 5?

F 4.25

G 0.15

H 3.75

J Not here

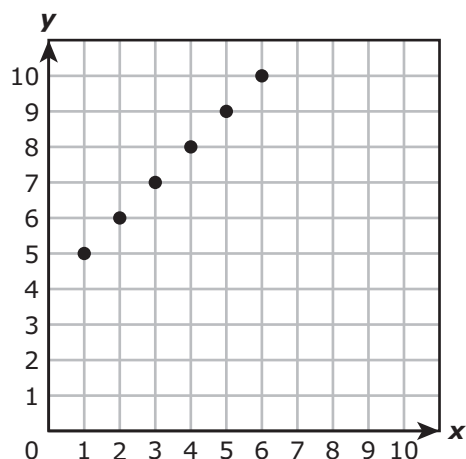
45 A definition of a financial term is shown in the box.

A tax on retail products based on a set percentage of retail cost

Which term best fits this definition?

- A Income tax
- B Payroll tax
- C Property tax
- D Sales tax

46 The points on the graph represent a numerical pattern.






Which statement about the pattern represented on the graph is true?




- F It is a multiplicative pattern because each y -coordinate has a higher value than the corresponding x -coordinate.
- G It is a multiplicative pattern because each x -coordinate is multiplied by 5 to create the corresponding y -coordinate.
- H It is an additive pattern because each y -coordinate has a higher value than the corresponding x -coordinate.
- J It is an additive pattern because each x -coordinate is increased by 4 to create the corresponding y -coordinate.

47 In which table are the check marks placed in all the correct boxes?




A

	Quadrilateral	Rhombus	Polygon
			✓
			✓
	✓		✓




B

	Quadrilateral	Rhombus	Polygon
	✓	✓	✓
			✓
	✓		✓

C

	Quadrilateral	Rhombus	Polygon
	✓		
			
	✓		

D

	Quadrilateral	Rhombus	Polygon
			
			✓
			✓

- 48** Students earned extra points on a science test for correctly answering a bonus question. The relationship between the students' original test score and their final test score, including the extra points, can be represented by the equation $y = x + 25$. Which table could represent this relationship?

Science Test

F

Original Test Score, x	Final Test Score, y
65	90
70	95
78	103
85	110

Science Test

H

Original Test Score, x	Final Test Score, y
72	97
80	105
83	98
91	106

Science Test

G

Original Test Score, x	Final Test Score, y
70	45
79	54
81	56
85	60

Science Test

J

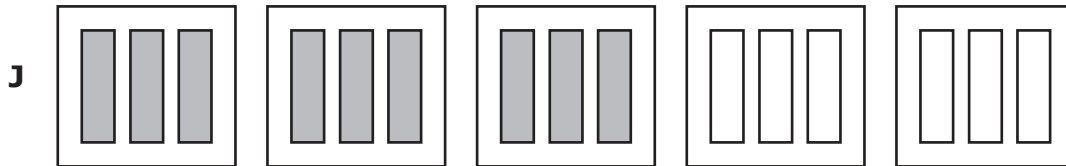
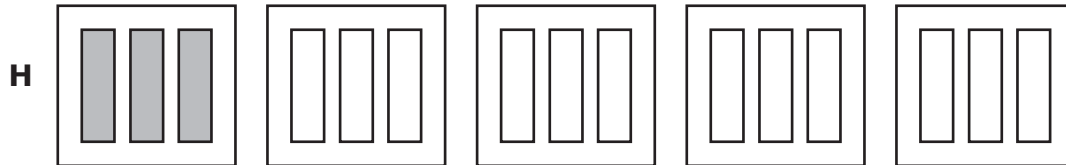
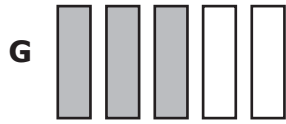
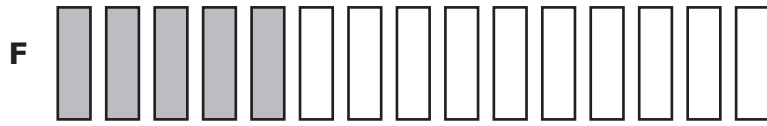
Original Test Score, x	Final Test Score, y
70	25
80	50
90	75
100	100

- 49** What is the value of this expression?

$$[45 - (6 + 3)] \times 27$$

- A** 1,134
B 972
C 198
D 1,206

50 Which model represents $\frac{3}{5}$ of 15?



**STAAR
GRADE 5
Mathematics
March 2016**

