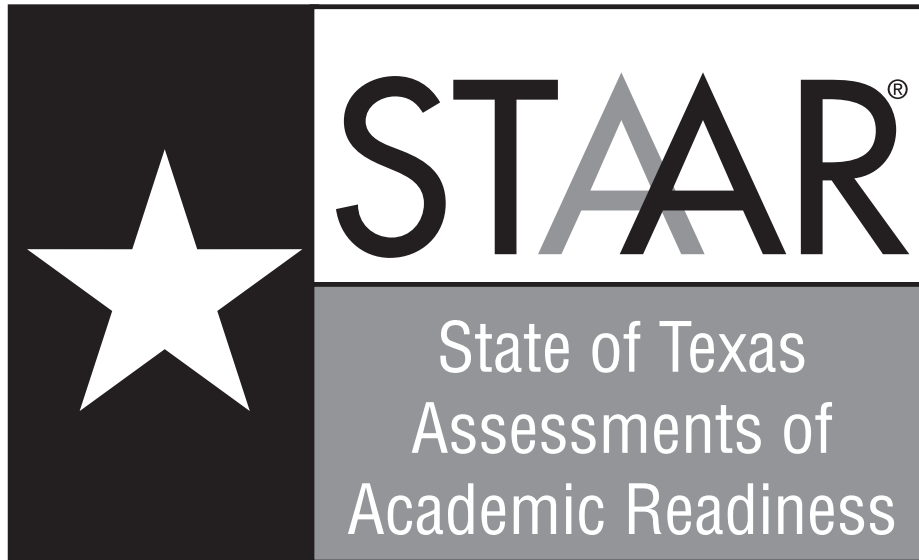




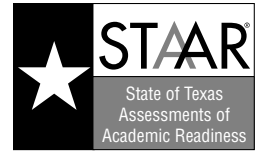
GRADE 4

Mathematics

Administered April 2014

RELEASED

STAAR GRADE 4 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

Inches

0

1

2

3

4

5

6

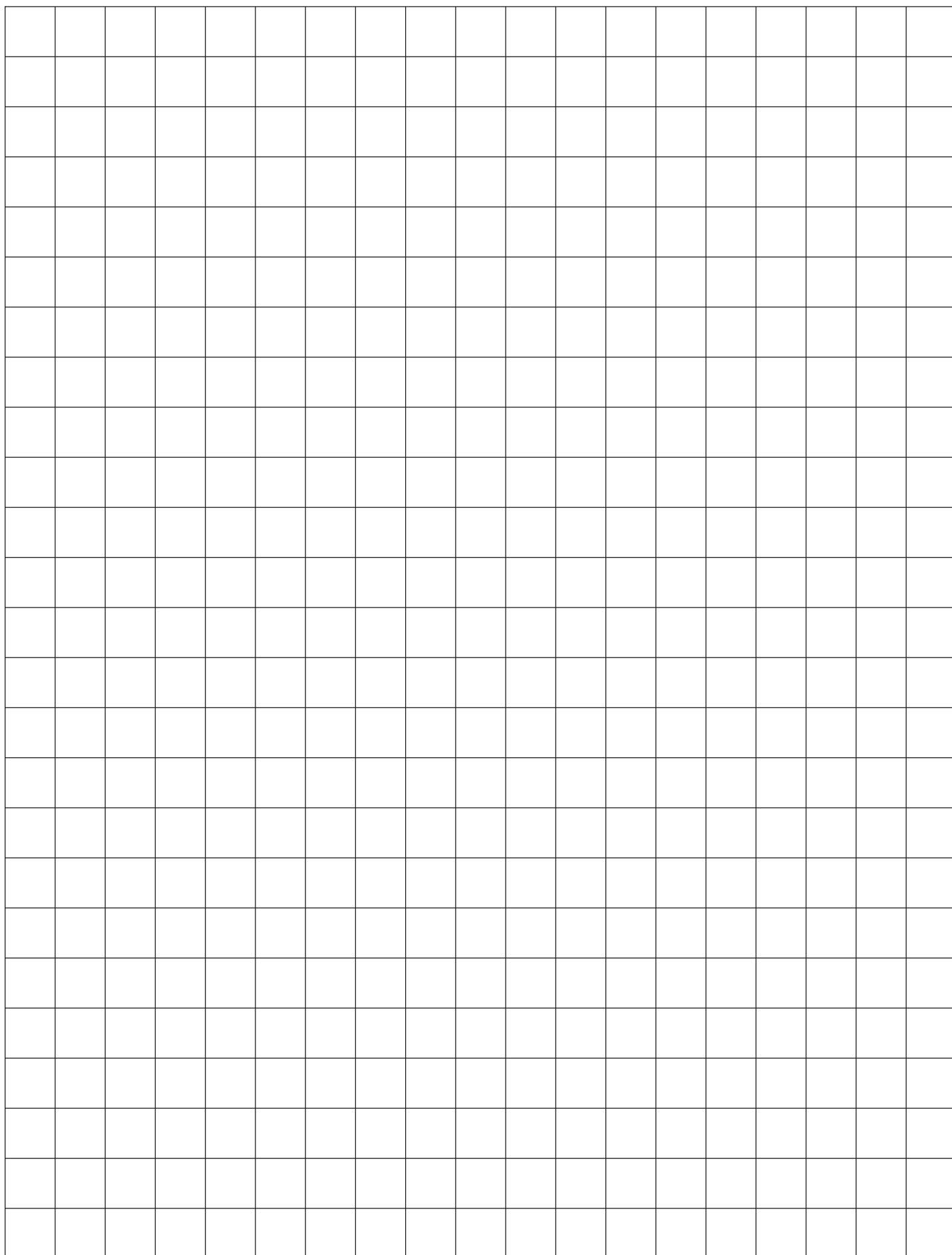
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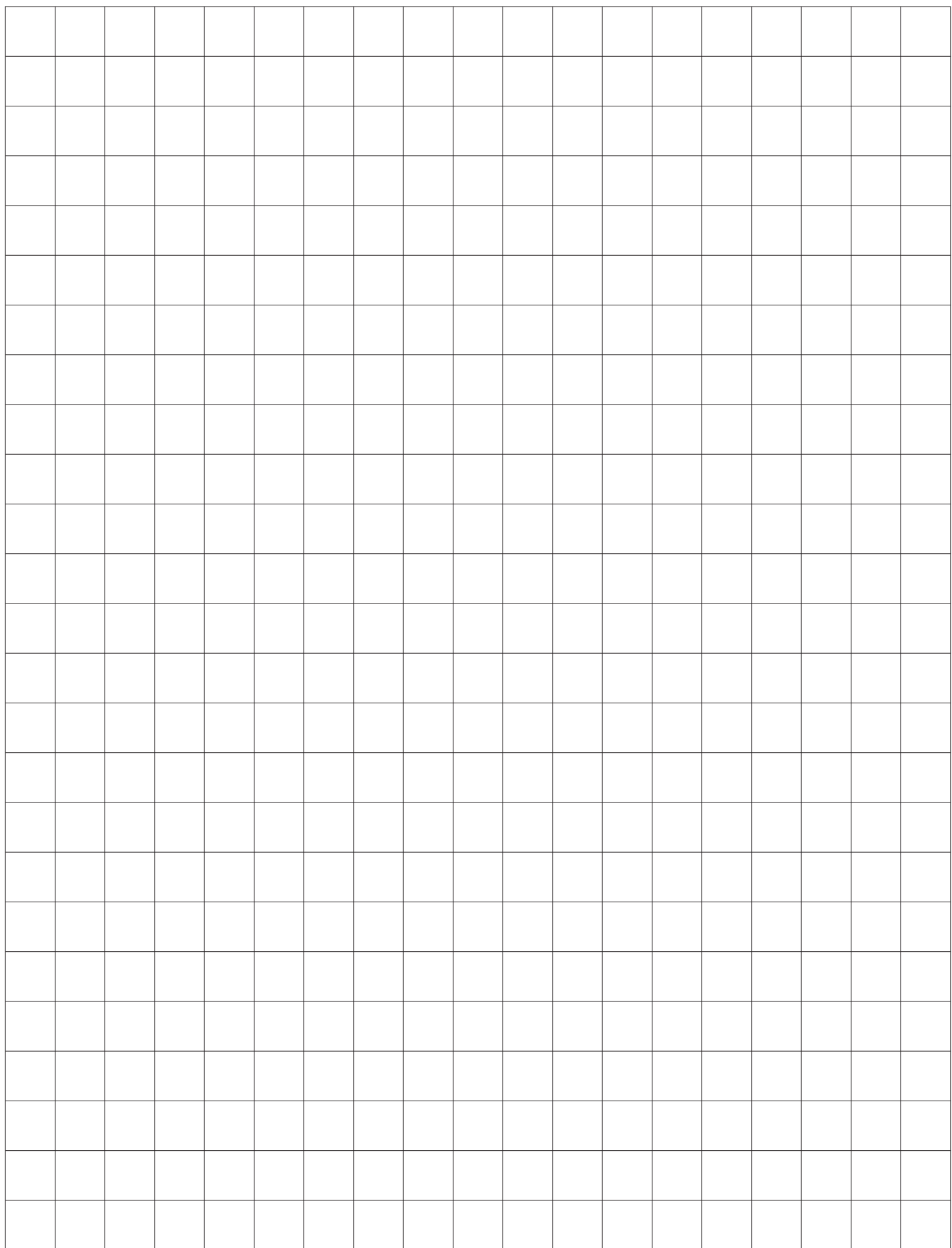
8

STAAR GRADE 4 MATHEMATICS REFERENCE MATERIALS



This page shows only
the metric ruler.





MATHEMATICS

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 In the equation below, the $\triangle$ and the $\square$ represent different numbers.

$$\triangle \times \square = 72$$

Which equation is in the same fact family?

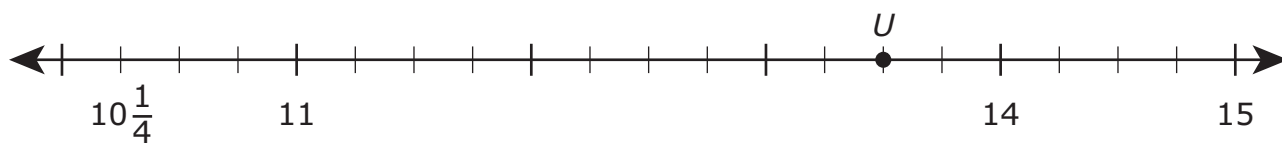
A $72 \times \square = \triangle$

B $\triangle \times 72 = \square$

C $72 \div \triangle = \square$

D $\square \div \triangle = 72$

2 Which number does point U represent on the number line below?



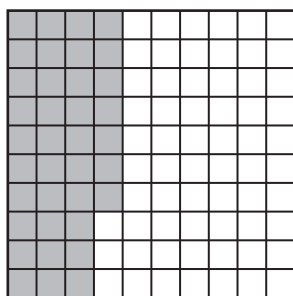
F $14\frac{2}{4}$

G $13\frac{3}{4}$

H $12\frac{2}{4}$

J $13\frac{2}{4}$

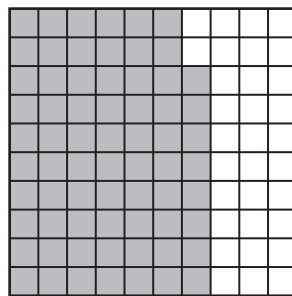
- 3 The models below are shaded to represent four different fractions.



$$\frac{37}{100}$$



$$\frac{4}{10}$$



$$\frac{68}{100}$$



$$\frac{5}{10}$$

Which decimal is **NOT** represented by one of these models?

- A 0.037
- B 0.4
- C 0.68
- D 0.5

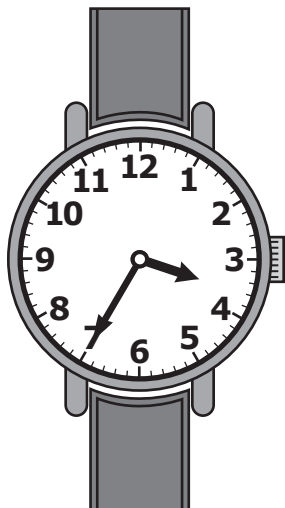
-
- 4 Terrence drew a figure. Each side of the figure is the same length as the line segment below. Use the ruler provided to measure the line segment to the nearest inch.



This figure could be a —

- F square with a perimeter of 6 inches
- G triangle with a perimeter of 6 inches
- H square with a perimeter of 12 inches
- J triangle with a perimeter of 12 inches

- 5** The watch below shows the time Edward finished a hike on Saturday afternoon.



Edward began the hike on Saturday at 10:15 A.M. How long did he hike?

- A** 5 hours 20 minutes
- B** 6 hours 20 minutes
- C** 5 hours 40 minutes
- D** 7 hours 40 minutes

6 Which list shows only rotations of Figure 1?



Figure 1

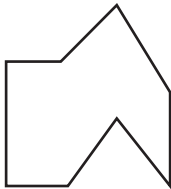


Figure
L

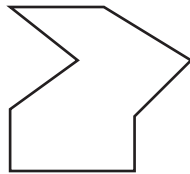


Figure
M



Figure
N

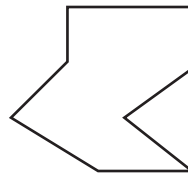


Figure
P



Figure
Q

- F** Figures L and N
- G** Figures M, P, and Q only
- H** Figures M and Q only
- J** Figures L, M, P, and Q

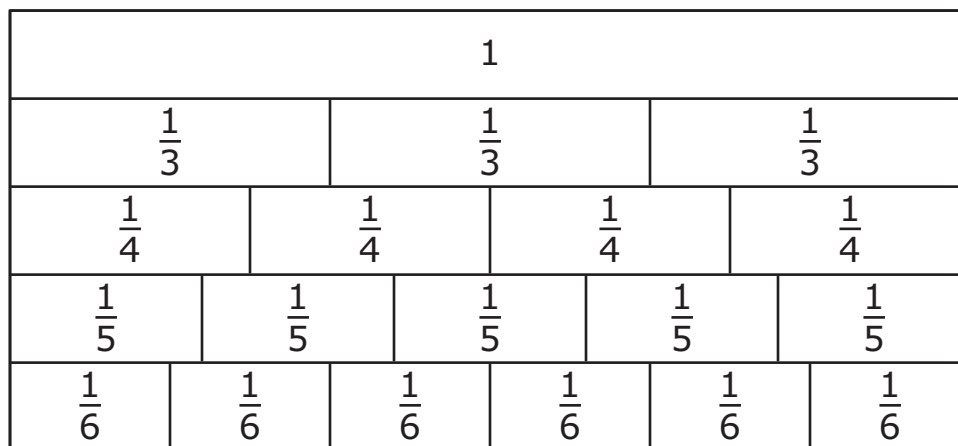
- 7** Adam puts the same number of cherry tomatoes on each salad he makes in his restaurant. The table below shows the number of cherry tomatoes in different numbers of salads.

Salads				
Number of Salads	25	35	50	100
Number of Cherry Tomatoes	125	175	250	500

Which statement describes the relationship between the number of salads and the number of cherry tomatoes?

- A** The number of salads $\times 4 =$ the number of cherry tomatoes
- B** The number of salads $+ 10 =$ the number of cherry tomatoes
- C** The number of salads $\times 5 =$ the number of cherry tomatoes
- D** The number of salads $+ 100 =$ the number of cherry tomatoes

- 8 A group of fraction bars is shown below.



Which list shows fractions in order from greatest to least?

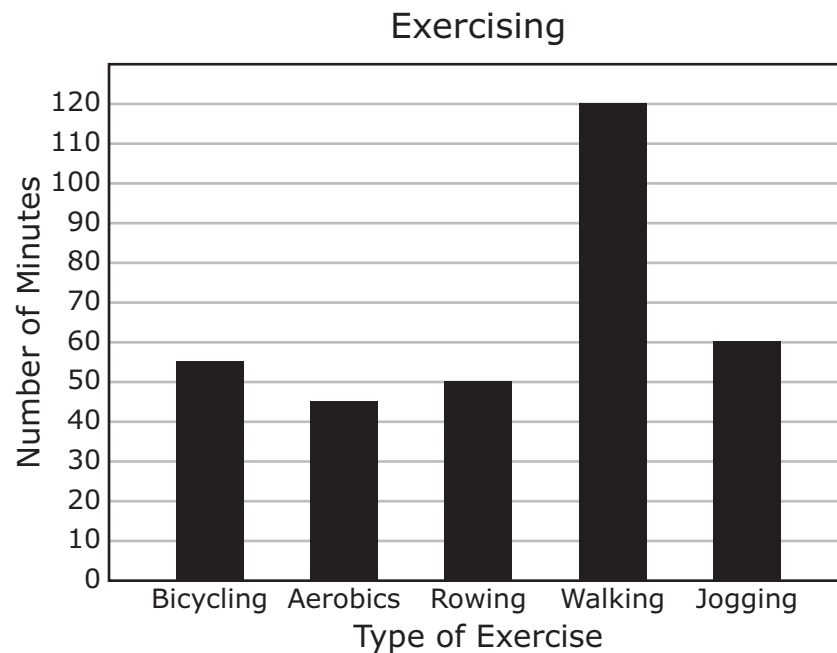
F $\frac{1}{4}, \frac{2}{5}, \frac{3}{6}, \frac{2}{3}$

G $\frac{3}{6}, \frac{2}{5}, \frac{1}{4}, \frac{2}{3}$

H $\frac{2}{3}, \frac{3}{6}, \frac{1}{4}, \frac{2}{5}$

J $\frac{2}{3}, \frac{3}{6}, \frac{2}{5}, \frac{1}{4}$

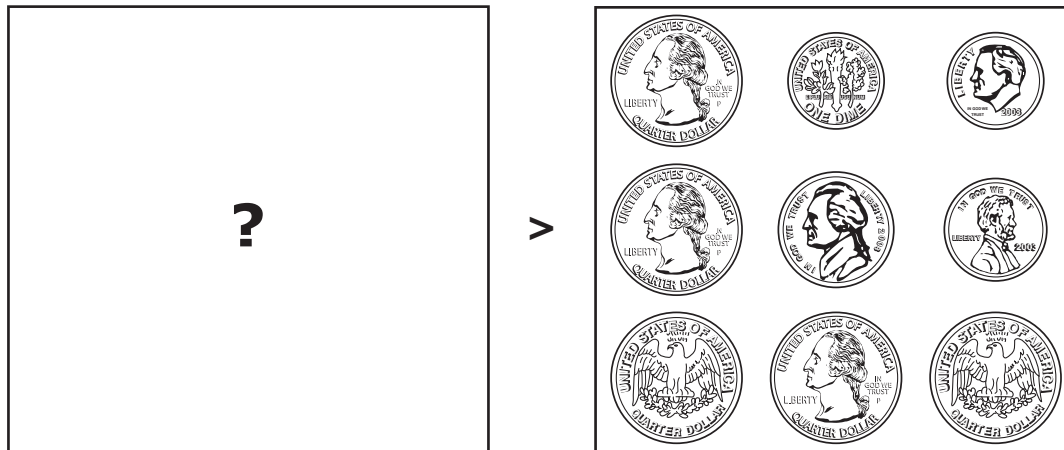
- 9 Evan tries to burn 500 calories each time he exercises. The graph below shows the number of minutes that each type of exercise must be done in order to burn 500 calories.



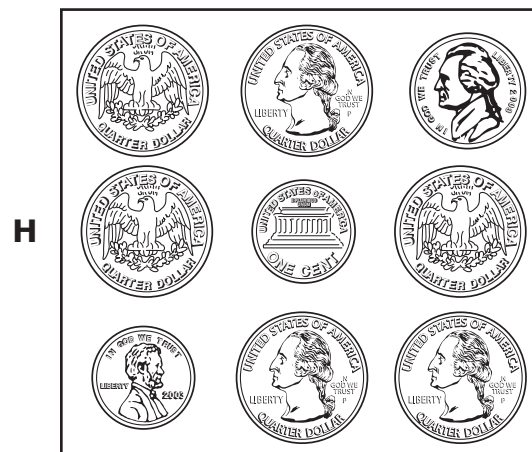
Based on the graph, how many more minutes of walking than aerobics must Evan do in order to burn 500 calories?

- A** 75 min, because $120 - 45 = 75$
- B** 165 min, because $120 + 45 = 165$
- C** 80 min, because $120 - 40 = 80$
- D** 170 min, because $120 + 50 = 170$

10 Sherri has an amount of money that would make the comparison below true.



Which amount of money would make the comparison true?



- 11** Niah packed 24 dozen candles into 3 boxes. She packed an equal number of candles into each box. How many candles did Niah pack into each box?
- A** 92
 - B** 96
 - C** 288
 - D** 91
-

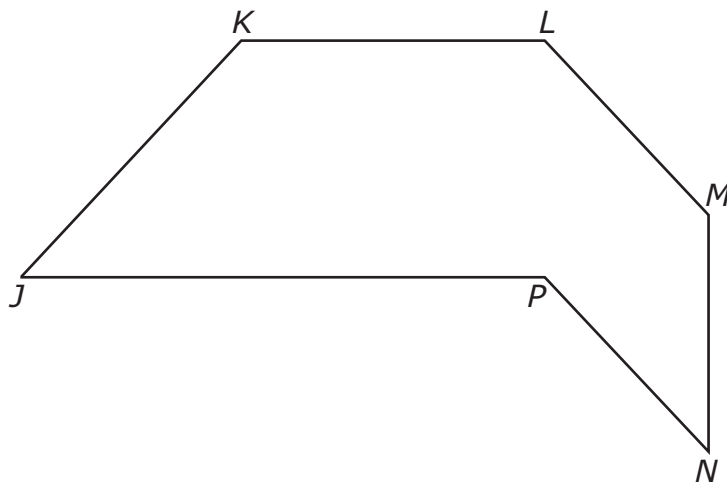
- 12** Which statement about a pentagon is true?
- F** It must have parallel sides.
 - G** It must have more vertices than sides.
 - H** It must have no right angles.
 - J** It must have 5 sides.
-

- 13** Fernando's car weighs 2 tons. Keith's car weighs 3,285 pounds. What is the difference between these two weights in pounds?

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

- 14** There are 990 football players on high school teams in a city. Each team has the same number of players. Which group of teams could **NOT** describe the teams of football players in this city?
- F** 45 teams with 22 players on each team
 - G** 27 teams with 70 players on each team
 - H** 33 teams with 30 players on each team
 - J** 18 teams with 55 players on each team

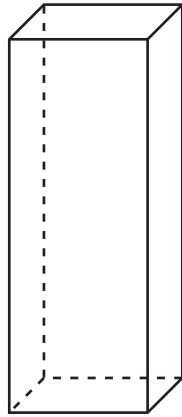
-
- 15** A figure is shown below.



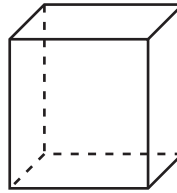
Which two line segments appear to be parallel?

- A** Line segments LM and NP
- B** Line segments MN and NP
- C** Line segments JK and JP
- D** Line segments KL and LM

- 16** Two towers in the shape of rectangular prisms are modeled below.



Tower 1

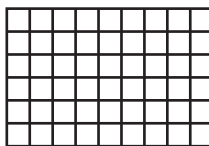


Tower 2

The volume of Tower 1 is 125 cubic feet. What is the best estimate of the volume of Tower 2 in cubic feet?

- F** More than 300 cubic feet
- G** Between 100 cubic feet and 200 cubic feet
- H** Between 40 cubic feet and 60 cubic feet
- J** Less than 10 cubic feet

- 17** The length and width of the array below represent two factors of a number.

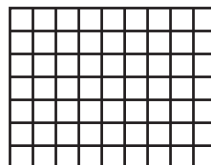


Which array represents two different factors of the same number?

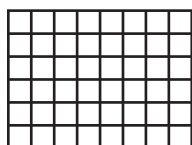
A



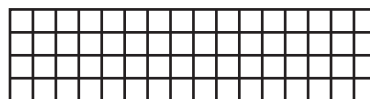
C



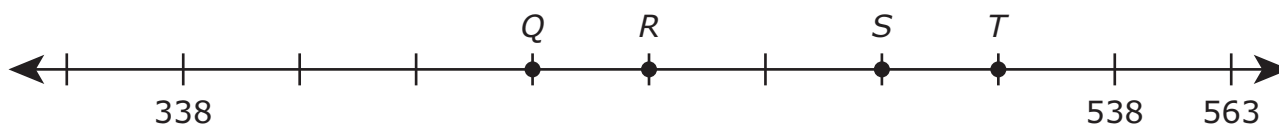
B



D

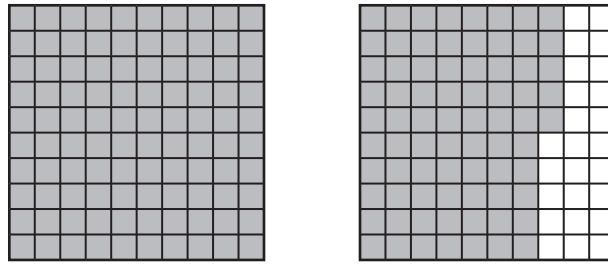


-
- 18** Which point represents 413 on the number line below?



- F** Point *Q*
G Point *R*
H Point *S*
J Point *T*

- 19** A book has a mass of 1.75 kilograms, as represented by the shaded model below.



How is the mass of the book written in words?

- A** One hundred seventy-five kilograms
- B** One and seventy-five hundredths kilograms
- C** Seventeen and five-tenths kilograms
- D** One and seventy-five tenths kilograms

- 20** Isaiah put 301 floor tiles in 7 rows. Each row had the same number of tiles. How many tiles did Isaiah put in each row?
- F** 43
G 41
H 42
J 40

-
- 21** The table below shows the relationship between the number of cars and the number of trucks at a car dealership on different days.

Car Dealership

Number of Trucks	Number of Cars
78	110
95	127
83	115
72	104
91	123

Which statement describes the relationship between the number of cars and the number of trucks at the dealership?

- A** The number of cars $+ 17 =$ the number of trucks
B The number of cars $- 32 =$ the number of trucks
C The number of cars $- 17 =$ the number of trucks
D The number of cars $+ 32 =$ the number of trucks

- 22** Rasha will receive 1 ticket during a contest. The tickets come in different colors and have different point values. Which group of choices has a total of 8 different combinations of 1 color and 1 point value?

F

Colors							
Red	Black	Blue	Green	Purple	Orange	Yellow	White

Point Values							
25	50	75	100	125	150	175	200

G

Colors			
Red	Black	Blue	Green

Point Values			
25	50	75	100

H

Colors			
Red	Black	Blue	Green

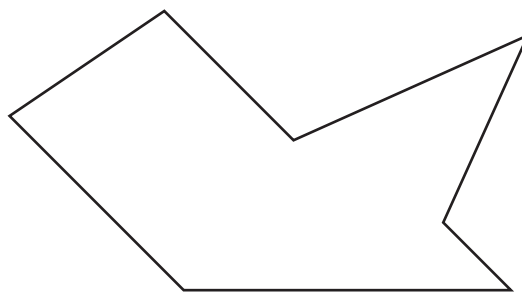
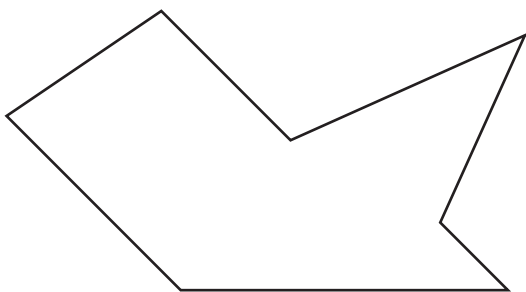
Point Values	
25	50

J

Colors							
Red	Black	Blue	Green	Purple	Orange	Yellow	White

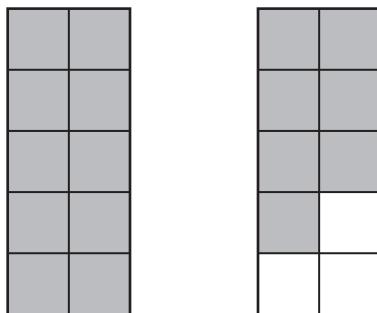
Point Values	
25	50

23 Which single transformation is shown below?



- A** Translation
- B** Rotation
- C** Reflection
- D** No transformation is shown.

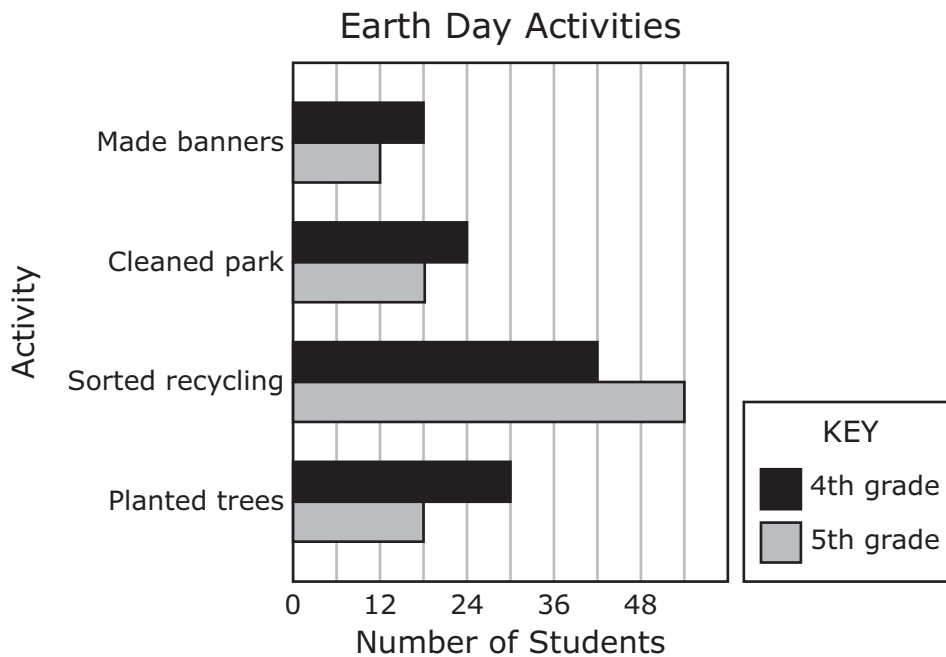
- 24** The model below is shaded to represent the part of two cakes eaten at a party.



Which fraction and decimal represent the part of these cakes eaten at the party?

- F** $\frac{17}{20}$ and 0.17
- G** $1\frac{7}{10}$ and 1.7
- H** $1\frac{7}{20}$ and 1.7
- J** $1\frac{7}{10}$ and 1.07

- 25** The graph below shows the numbers of 4th-grade and 5th-grade students who participated in different Earth Day activities at a school. Each student participated in only one activity.



Based on the graph, which statement is true?

- A** There were 12 more 4th-grade students than 5th-grade students who participated in Earth Day activities.
- B** A total of 84 of these students sorted recycling.
- C** There were 24 more 4th-grade and 5th-grade students who planted trees than who made banners.
- D** A total of 36 students participated in Earth Day activities.

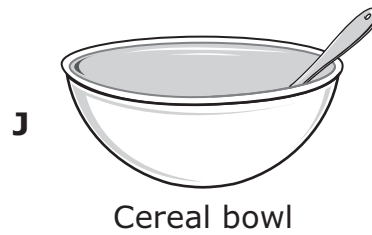
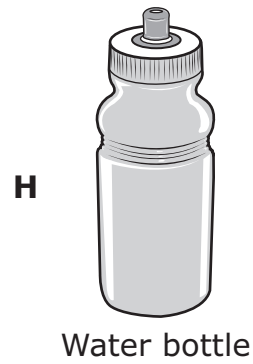
- 26** Zenobia put 3 large pictures and 4 small pictures on each page of a photo album. What is the total number of large pictures and small pictures on 9 pages of the album?

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

-
- 27** Which figure has exactly 4 vertices?

- A** Square pyramid
- B** Triangular pyramid
- C** Rectangular prism
- D** Triangular prism

28 Which object has a capacity closest to 30 cups?



- 29** Lionel sells boxes of greeting cards. The table below shows the number of cards in different numbers of boxes.

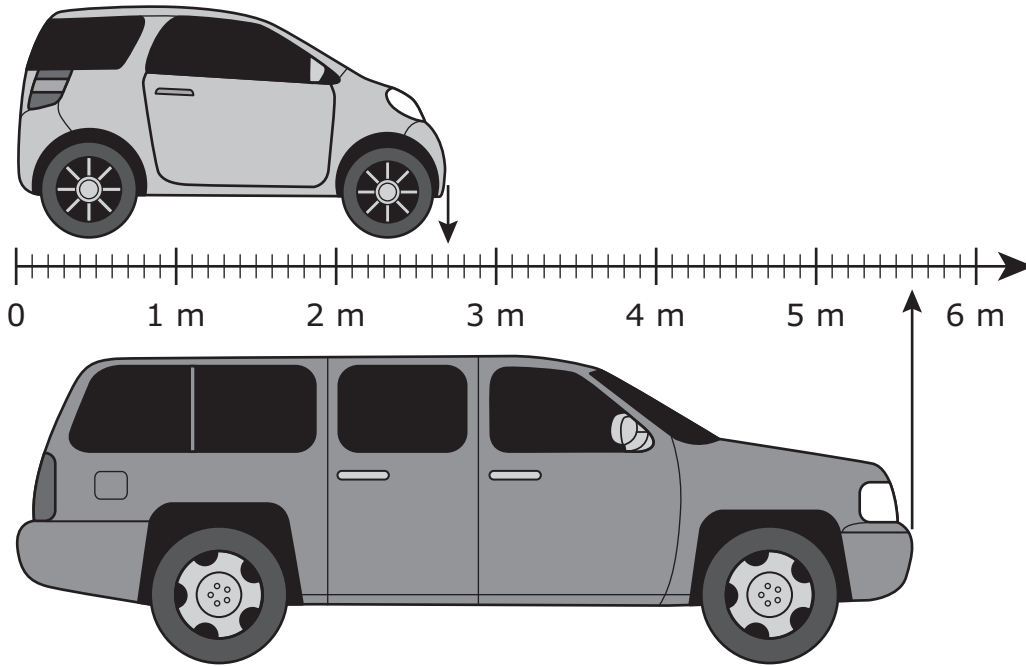
Greeting Cards

Number of Boxes	49	67	82	114
Number of Greeting Cards	4,900	6,700	8,200	

How many greeting cards are in 114 of these boxes?

- A** 10,000
- B** 1,140
- C** 11,400
- D** 11,004

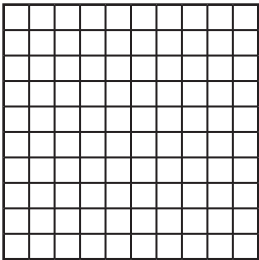
30 The model below represents the lengths of two automobiles in meters.



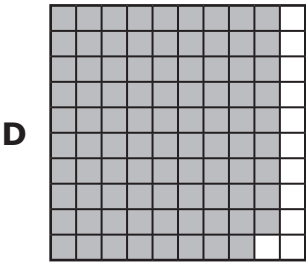
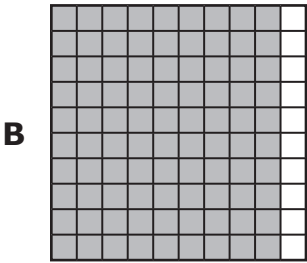
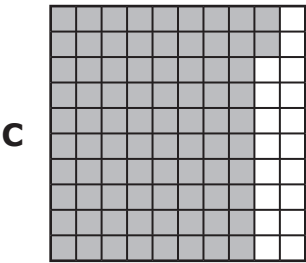
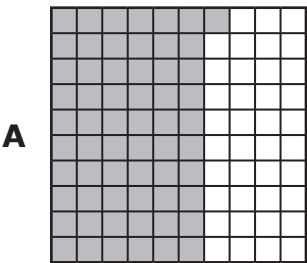
What is the difference between the lengths of these automobiles in meters?

- F** 8.3 m
- G** 3.9 m
- H** 3.1 m
- J** 2.9 m

31 The decimal number 0.82 can be shaded on the grid below.



Which grid is shaded to represent a decimal less than 0.82?



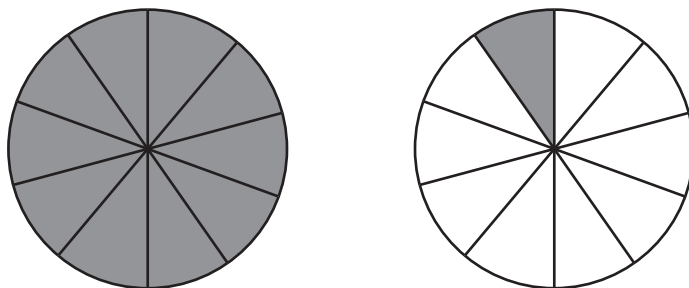
32 The actual size of Sam's name tag is shown below.



Use the ruler provided to measure the length and width of this name tag to the nearest centimeter. What is the difference between the length and the width of Sam's name tag in centimeters?

- F** 5 cm
- G** 14 cm
- H** 9 cm
- J** 4 cm

- 33** The model below is shaded to represent $1\frac{1}{10}$.



Which decimal does the model represent?

- A** 1.1
- B** 11.0
- C** 1.01
- D** 10.1

- 34** Yancey will buy 1 magazine and 1 snack at a bookstore. The types of magazines and types of snacks are shown below.

Types of Magazines	Types of Snacks
Sports	Chips
News	Fruit
Fashion	Popcorn
Nature	Trail mix
Music	Cookies

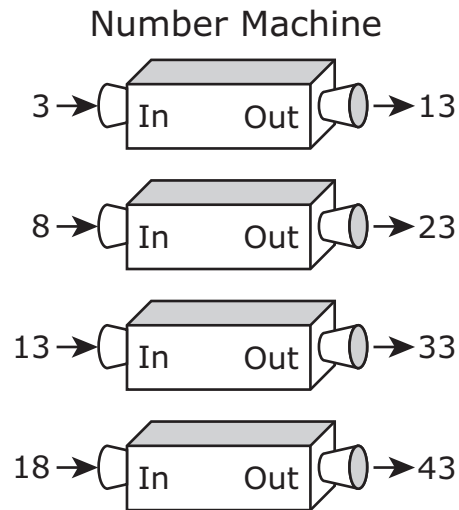
How many different combinations of 1 type of magazine and 1 type of snack are possible?

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

-
- 35** Which pair of figures shows only a reflection?



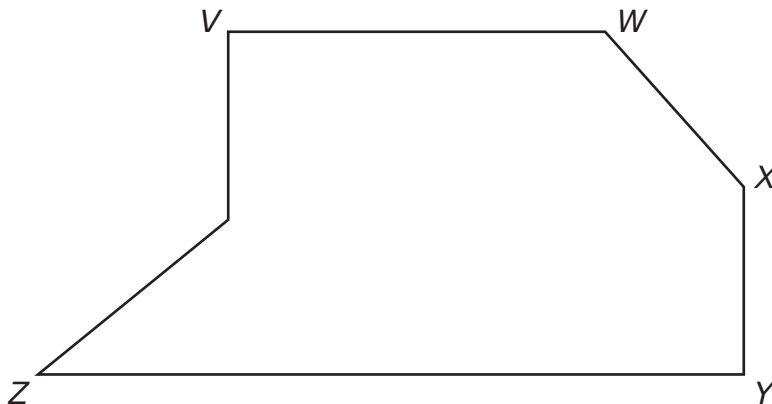
- 36** Each number put into a machine changes according to a rule. Some examples are shown below.



Which statement describes the relationship between the number that goes into the machine and the number that comes out of the machine?

- F** Number out = $4 \times$ number in and then $+ 1$
 - G** Number out = $2 \times$ number in and then $+ 2$
 - H** Number out = $3 \times$ number in and then $+ 4$
 - J** Number out = $2 \times$ number in and then $+ 7$
-
- 37** Each of 16 students in a class made a poetry book. Each book contained 24 poems. How many poems are in 16 books?
- A** 484
 - B** 364
 - C** 384
 - D** 168

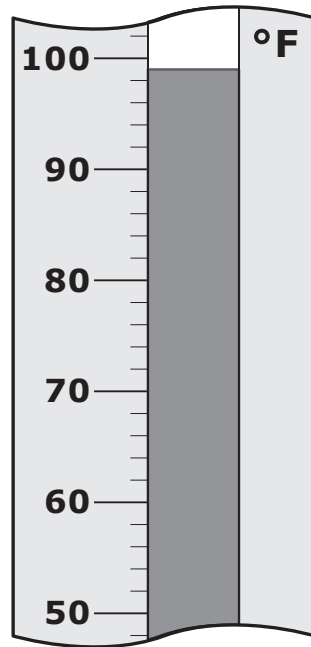
38 Five angles are labeled on the figure shown below.



The labeled angles appear to be —

- F** 1 acute angle, 1 right angle, and 3 obtuse angles
- G** 2 acute angles, 2 right angles, and 1 obtuse angle
- H** 1 acute angle, 2 right angles, and 2 obtuse angles
- J** 2 acute angles, 1 right angle, and 2 obtuse angles

39 The thermometer below shows the high temperature on a summer day.



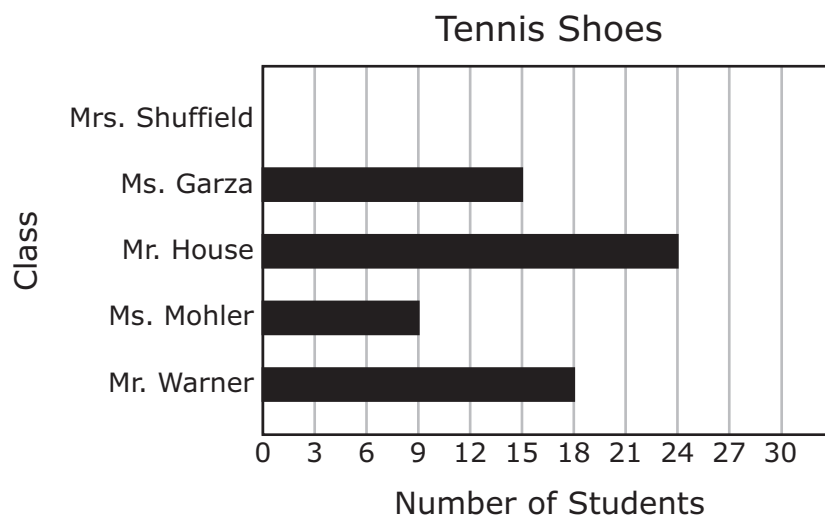
The low temperature on the same day was 24°F cooler. Which temperature is closest to the low temperature on that day?

- A** 76°F
- B** 52°F
- C** 51°F
- D** 75°F

- 40** Isabel has 745 strawberries. She separated the strawberries into 5 equal groups. How many strawberries are in 2 of the groups?
- F** 202, because $745 \div 5 = 101$ and $101 \times 2 = 202$
- G** 282, because $745 \div 5 = 141$ and $141 \times 2 = 282$
- H** 298, because $745 \div 5 = 149$ and $149 \times 2 = 298$
- J** 290, because $745 \div 5 = 145$ and $145 \times 2 = 290$
-

- 41** Which of these is closest to the width of a student's chair?
- A** 15 feet
- B** 15 yards
- C** 15 miles
- D** 15 inches

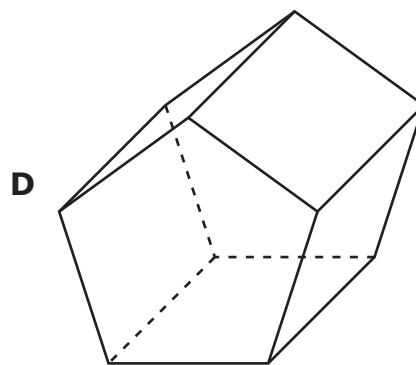
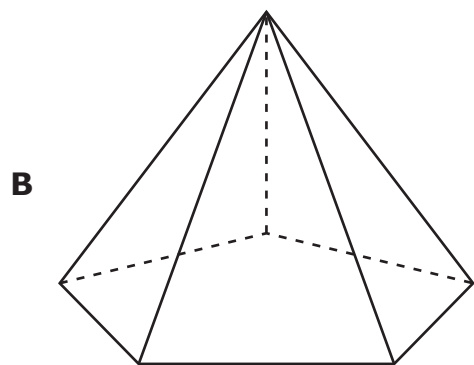
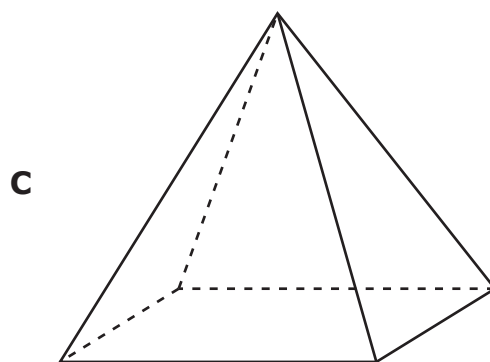
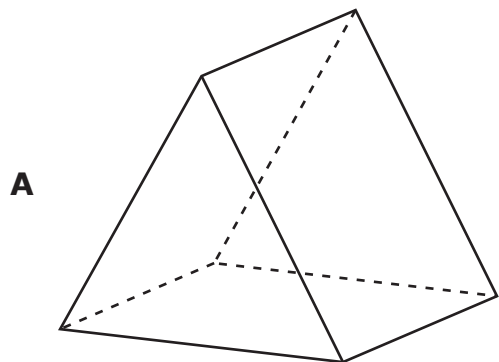
- 42** The graph below shows the number of students in four classes who wore tennis shoes on Friday. The data for Mrs. Shuffield's class is missing.



A total of 87 students wore tennis shoes on Friday. How many students in Mrs. Shuffield's class wore tennis shoes?

- F** 66
- G** 21
- H** 153
- J** 108

43 Which figure has the least number of edges?



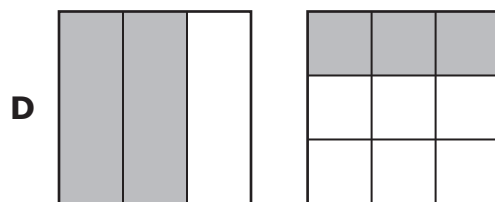
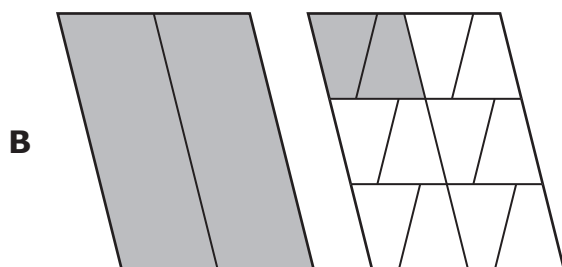
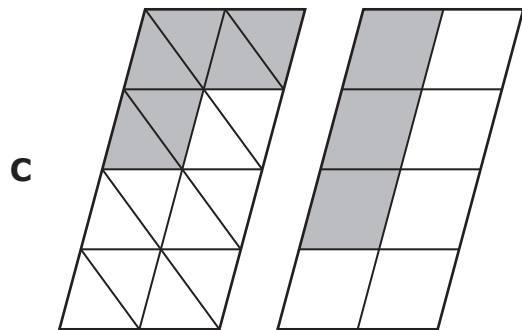
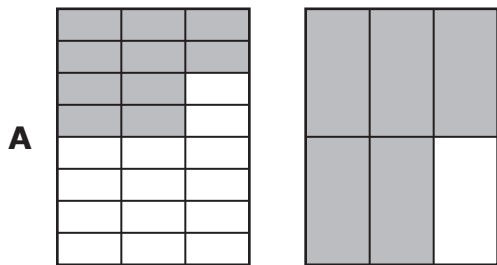
44 The number of worker bees in two bee colonies is shown below.

- Colony A has 24,815 worker bees.
- Colony B has 7,144 worker bees.

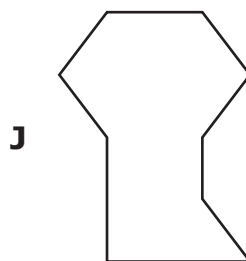
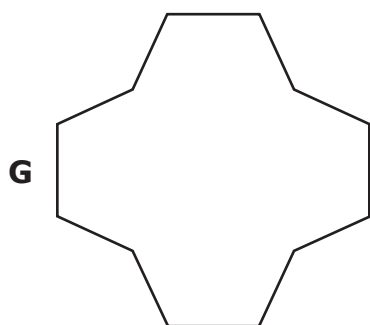
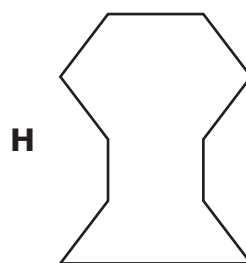
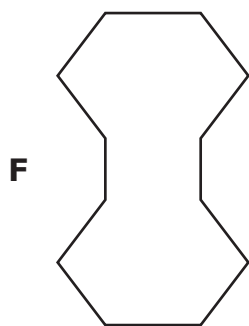
Which of the following is the best estimate of the difference between the number of worker bees in these colonies?

- F** 23,000
G 18,000
H 13,000
J 16,000

45 Which pair of models is shaded to represent equivalent fractions?



46 Which figure appears to have exactly 2 lines of symmetry?



- 47** The table below shows the number of fluid ounces in different numbers of tablespoons.

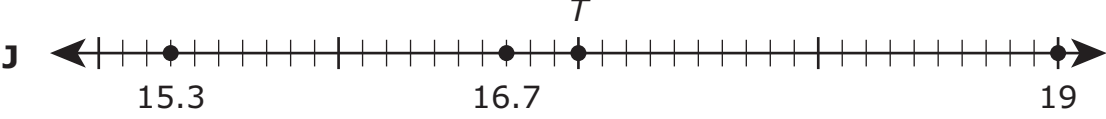
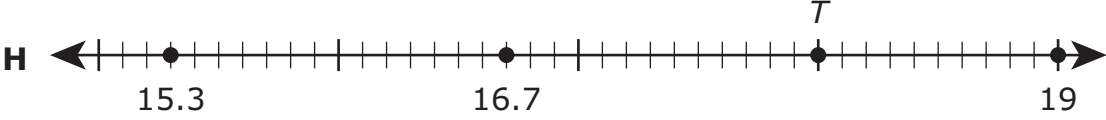
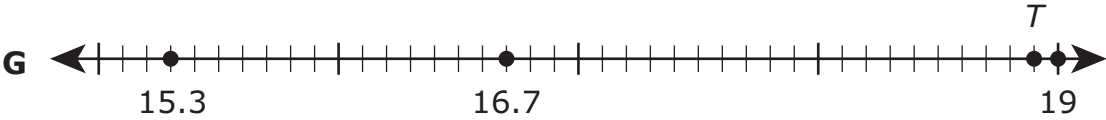
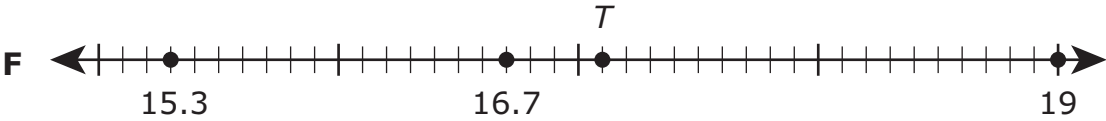
Fluid Ounces

Number of Tablespoons	Number of Fluid Ounces
32	16
24	12
14	7
10	5

Which statement describes the relationship between the number of tablespoons and the number of fluid ounces?

- A** The number of tablespoons $- 8 =$ the number of fluid ounces
- B** The number of tablespoons $\times 2 =$ the number of fluid ounces
- C** The number of tablespoons $+ 16 =$ the number of fluid ounces
- D** The number of tablespoons $\div 2 =$ the number of fluid ounces

48 On which number line does point T represent 18.0?



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



**STAAR
GRADE 4
Mathematics
April 2014**