

**GRADE 4
Mathematics**

Administered May 2021

RELEASED

STAAR GRADE 4 MATHEMATICS REFERENCE MATERIALS



PERIMETER

Square

$$P = 4s$$

Rectangle

$$P = l + w + l + w$$

or

$$P = 2l + 2w$$

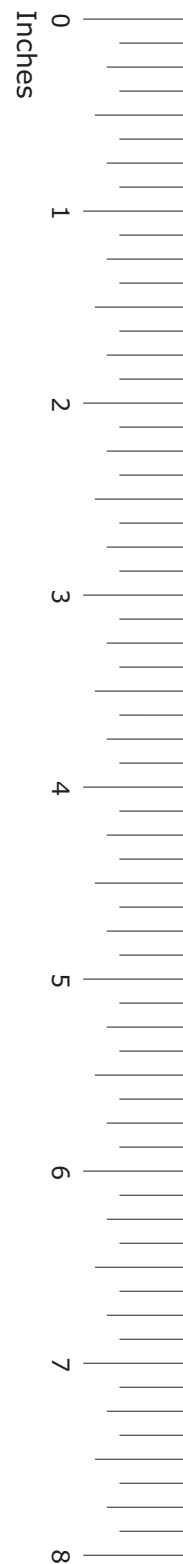
AREA

Square

$$A = s \times s$$

Rectangle

$$A = l \times w$$



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

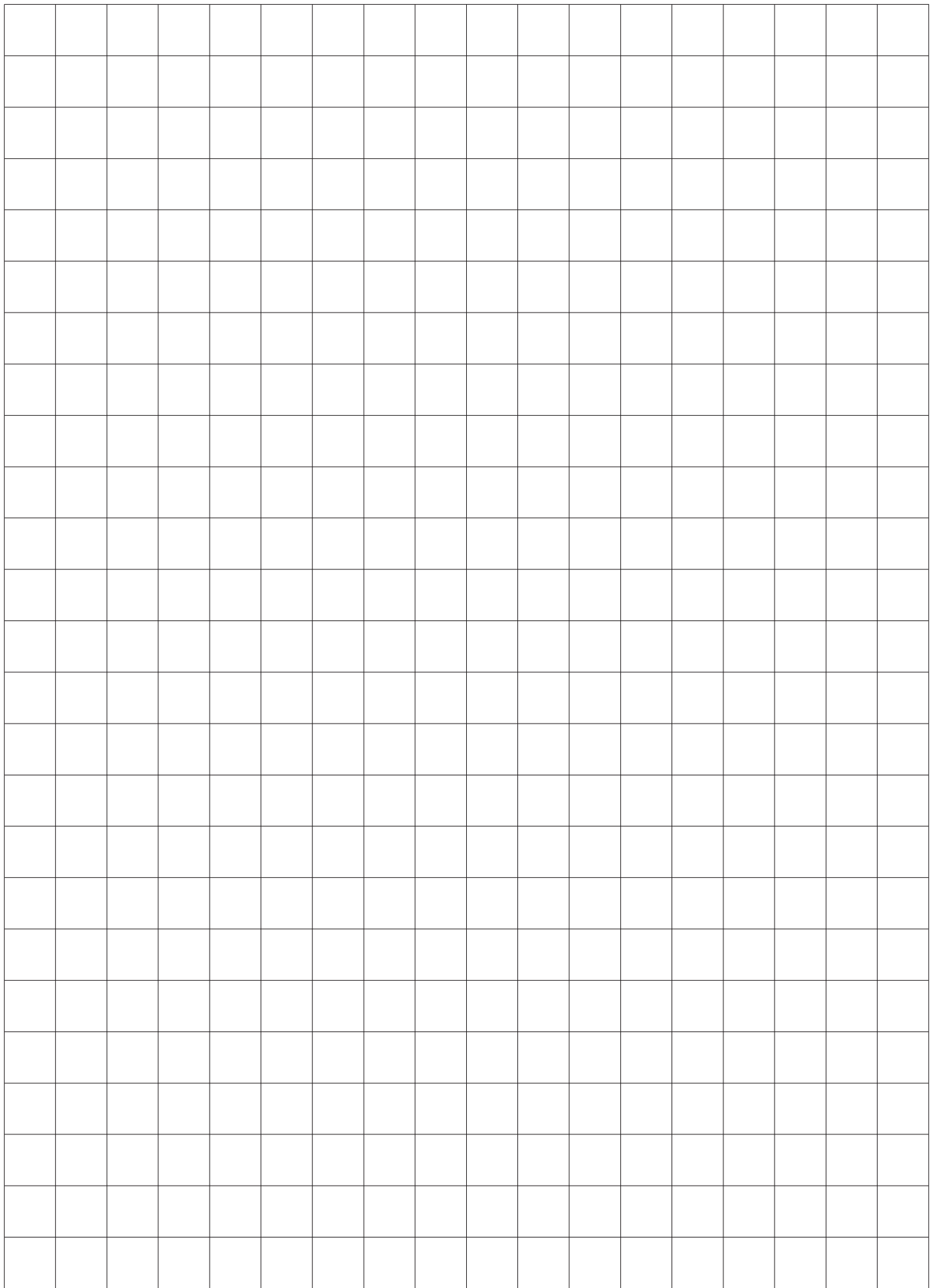
1 year = 52 weeks

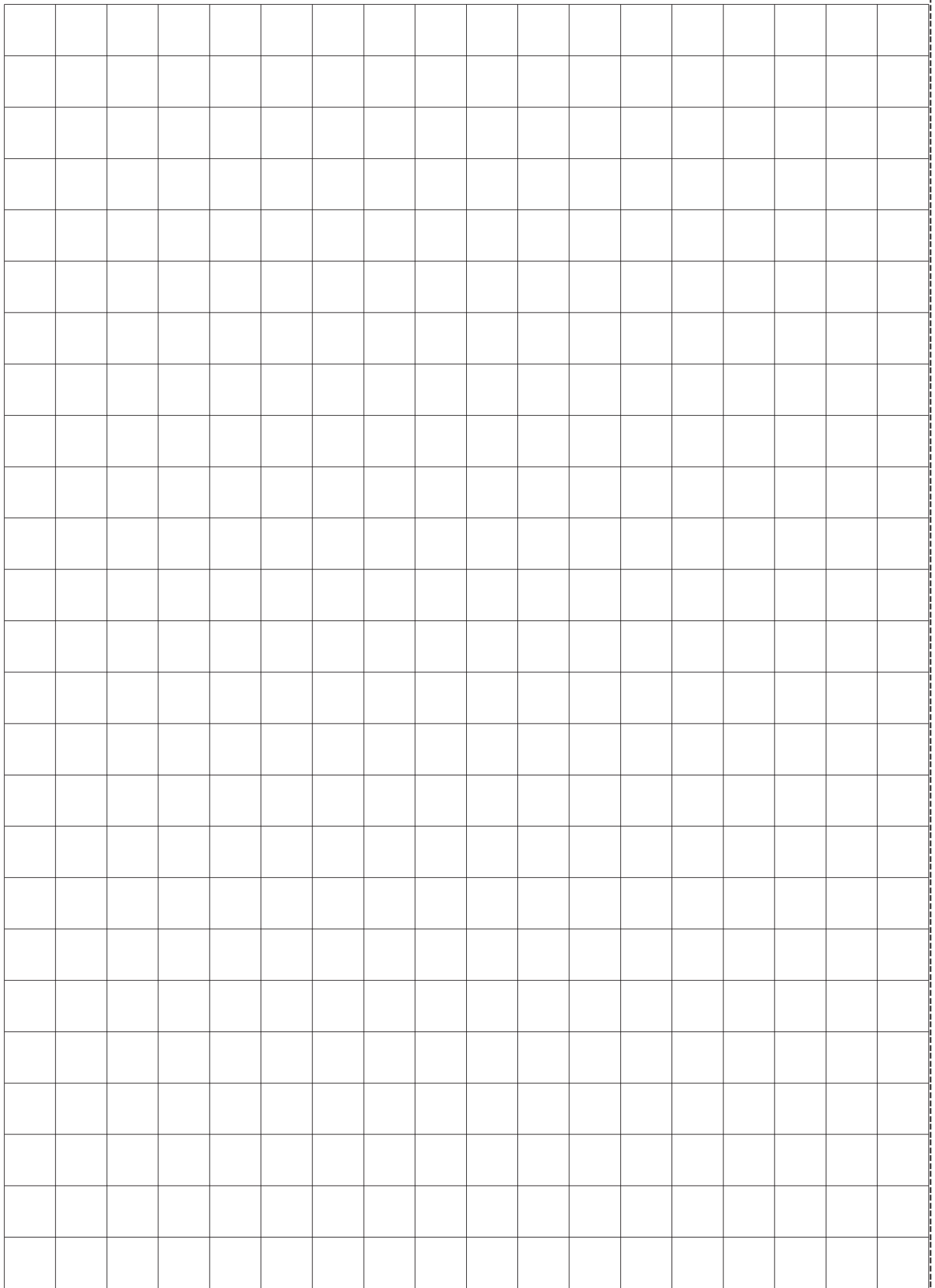
1 week = 7 days

1 day = 24 hours

1 hour = 60 minutes

1 minute = 60 seconds



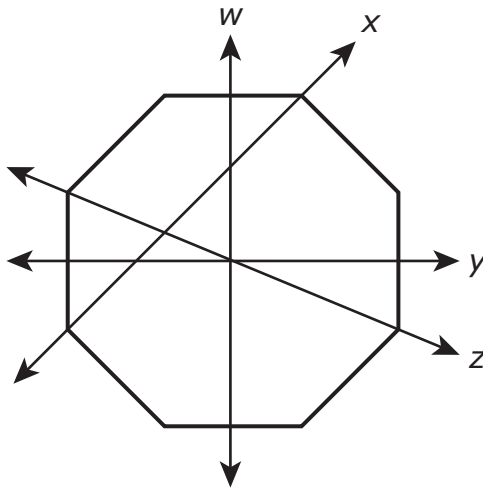


MATHEMATICS

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 drawing shows four lines through a figure. Three of the lines are lines of symmetry.



Which line does NOT appear to be a line of symmetry for this figure?

- A Line *w*
- B Line *x*
- C Line *y*
- D Line *z*

- 2 Kendrick used $4\frac{5}{8}$ bags of dirt in a garden of roses and $9\frac{1}{8}$ bags of dirt in a garden of wildflowers. Which equation can be used to find the number of bags of dirt Kendrick used?

F $\frac{4}{8} + \frac{5}{8} + \frac{9}{8} + \frac{1}{8} = \frac{19}{8}$

G $\frac{9}{8} + \frac{10}{8} = \frac{19}{16}$

H $\frac{20}{8} + \frac{9}{8} = 3\frac{5}{8}$

J $4 + 9 + \frac{5}{8} + \frac{1}{8} = 13\frac{6}{8}$

- 3 The number of movie tickets sold at a theater last year can be written in expanded notation, as shown.

$$(8 \times 100,000) + (6 \times 1,000)$$

What is this number written in standard form?

- A 860,000
B 86,000
C 806,000
D 8,006,000

4 The list shows the numbers of visitors who arrived and the numbers of visitors who left a science museum for the first three hours after it opened one day.

- In the first hour, 294 visitors arrived.
- In the second hour, 408 visitors arrived and 89 visitors left.
- In the third hour, 313 visitors arrived and 175 visitors left.

How many visitors were in the science museum after the third hour?

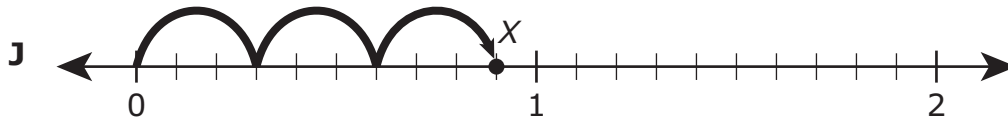
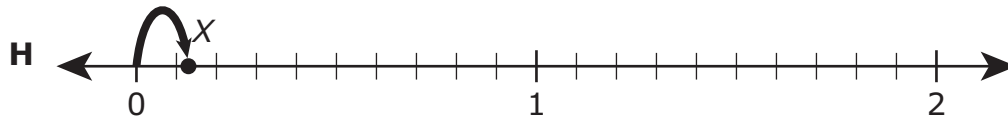
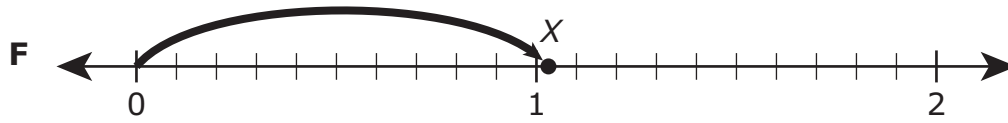
- F** 457
G 751
H 1,015
J 901
-

5 Which fraction belongs in the to make this comparison true?

$$\frac{3}{7} > \text{ }$$

- A** $\frac{1}{4}$
B $\frac{2}{3}$
C $\frac{1}{2}$
D $\frac{3}{5}$

6 On which number line is point X located a distance of 1.3 units from zero?



- 7 The frequency table shows the number of movies watched last month by each student in Mr. Westley's class.

Movies Watched
Last Month

Number of Movies	Number of Students
1	
2	
3	
4	

What is the difference between the number of students who watched 2 movies last month and the number of students who watched one movie last month?

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

8 Which equation shows a decimal and a fraction that are equivalent?

F $23.5 = 23\frac{5}{100}$

G $23.55 = 23\frac{55}{10}$

H $23.05 = 23\frac{5}{10}$

J $23.5 = 23\frac{50}{100}$

9 At a school store, folders cost 27 cents each and water bottles cost 93 cents each. Berta has 80 cents.

Which set of equations can be used to find c , the number of cents Berta still needs in order to buy 2 folders and 1 water bottle?

A $27 + 93 = 120$
 $120 - 80 = c$

C $27 + 93 = 120$
 $120 + 80 = c$

B $27 \times 2 = 54$
 $54 + 93 = 147$
 $147 - 80 = c$

D $27 \times 2 = 54$
 $54 + 93 = 147$
 $147 + 80 = c$

10 Maribel drew a shape. The shape has exactly one pair of opposite sides that are parallel. None of the sides are perpendicular to each other.

Which shape can be the one Maribel drew?

F Trapezoid

G Rhombus

H Square

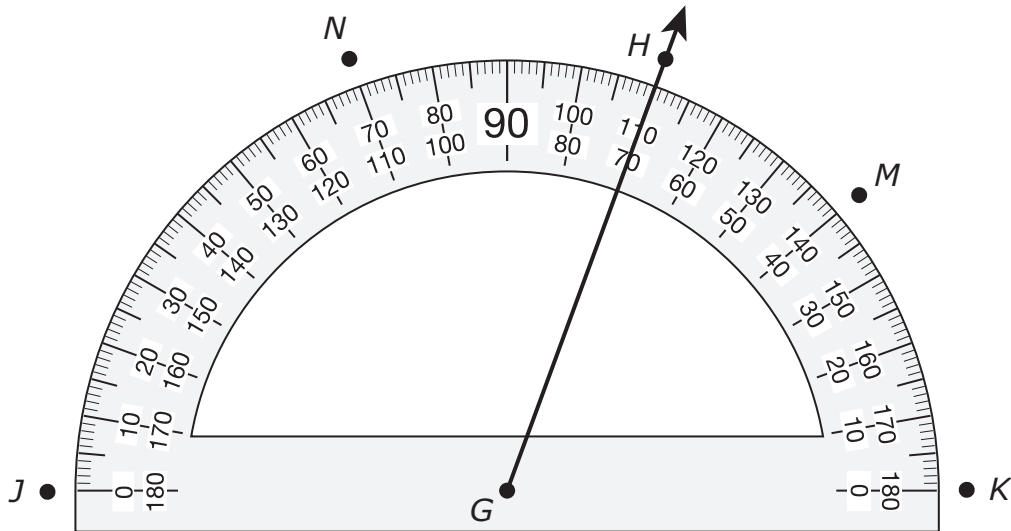
J Rectangle

11 A large envelope contains only \$5 bills. The total value of the \$5 bills is \$2,435.

Which equation can be used to find the number of \$5 bills in the envelope?

- A** $2,435 \div 5 = 487$
- B** $2,435 \times 5 = 12,175$
- C** $2,435 + 5 = 2,440$
- D** $2,435 - 5 = 2,430$

12 Ray GH has been drawn on the protractor, as shown.



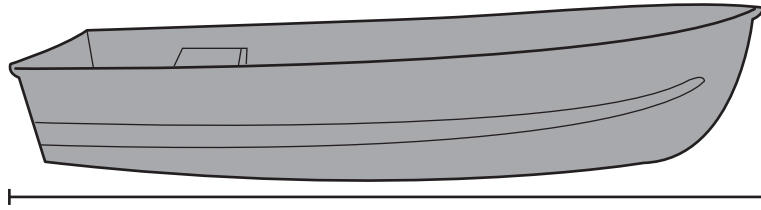
To construct an angle that has a measure of 70° , another ray can be drawn that starts at point G and passes through —

- F** point J
- G** point K
- H** point M
- J** point N

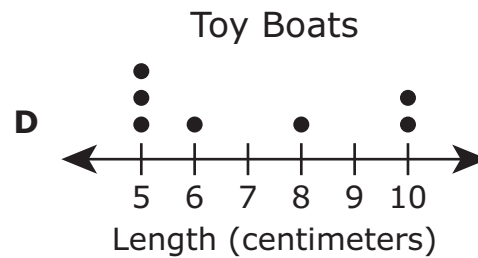
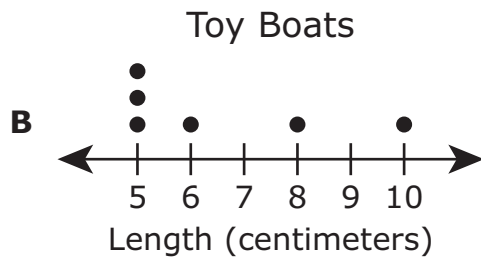
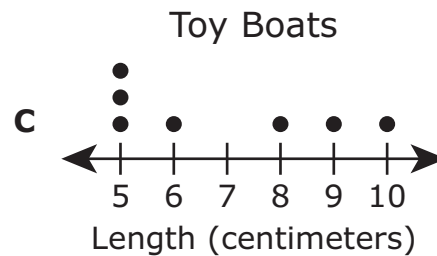
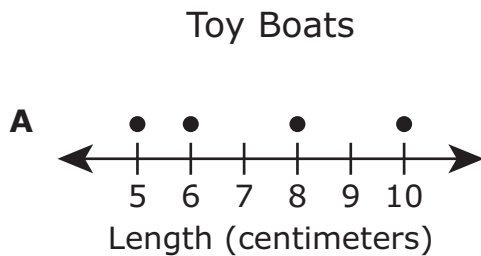
- 13 The list shows the lengths in centimeters of some toy boats. The length of one toy boat is missing.

5, 5, 6, 10, 8, 5,

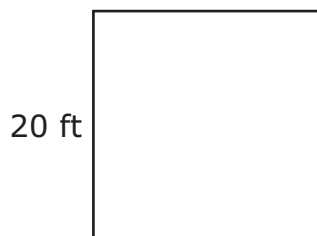
The toy boat that still needs to be measured is shown. Use the ruler provided to measure the length of the toy boat to the nearest centimeter.



Which dot plot represents the lengths of all of the toy boats?



14 The width of a square playground is shown in feet.



What is the area of the playground in square feet?

- F** 40 square feet
 - G** 80 square feet
 - H** 400 square feet
 - J** 220 square feet
-

15 Meredith had 12 packages of erasers to put into bags.

- Each package had 43 erasers.
- She put 6 erasers into each bag.

What is the greatest number of bags Meredith could have put erasers into?

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

16 Ms. Lanford buys and sells used clothes. Ms. Lanford bought a dress, a sweater, and shorts for a total of \$12.00. She then sold each item for the price shown in the list.

- She sold the dress for \$20.75.
- She sold the sweater for \$15.25.
- She sold the shorts for \$8.50.

What was Ms. Lanford's total profit from selling the dress, sweater, and shorts?

- F** \$12.00
 - G** \$56.50
 - H** \$32.50
 - J** \$44.50
-

17 Which type of triangle has perpendicular sides?

- A** An obtuse triangle
 - B** An acute triangle
 - C** A right triangle
 - D** None of these
-

18 What is the value of 238,855 when rounded to the nearest thousand?

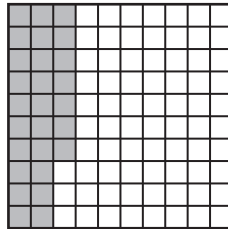
- F** 238,000
- G** 230,000
- H** 240,000
- J** 239,000

- 19** There are 1,150 baseball cards that will be sorted into bags. Each bag holds 5 baseball cards.

How many bags are needed for all the baseball cards?

- A** 23
 - B** 230
 - C** 1,145
 - D** 5,750
-

- 20** The model is shaded to represent a decimal number less than one.



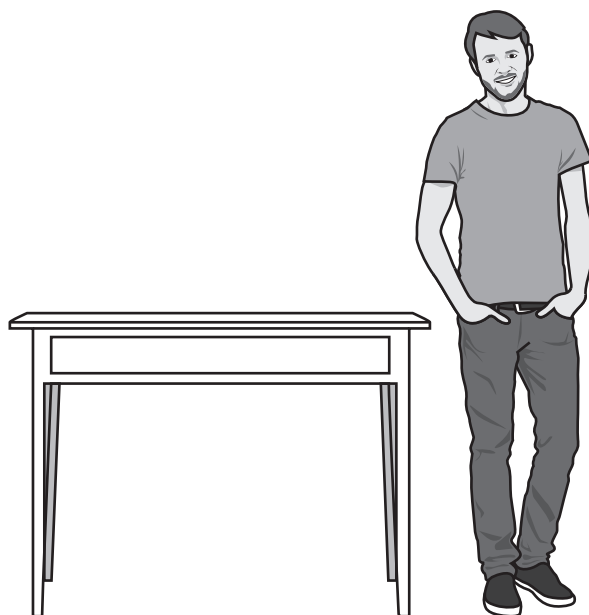
Which value is represented by the shaded part of the model?

- F** Two and seven-tenths
- G** Twenty-seven
- H** Twenty-seven-hundredths
- J** Two and seven-hundredths

21 Lindsey purchased one pet carrier that cost \$21.89 and 2 bags of cat food that cost \$16.49 each. What was the total cost of these items?

- A** \$54.87
- B** \$38.38
- C** \$43.67
- D** \$32.98

22 A man is standing next to a table.



Which measurement best describes the height of the table?

- F** 3 meters
- G** 3 centimeters
- H** 3 feet
- J** 3 inches

- 23** An orchestra had 8 performances. There were 2,464 tickets sold for each performance.

What was the total number of tickets sold for all 8 performances?

- A** 16,282
 - B** 38
 - C** 308
 - D** 19,712
-

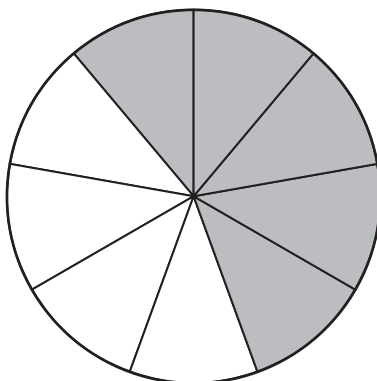
- 24** Della wrote a number:

- The digit in the hundredths place is a 4.
- The digit in the thousands place is a 7.
- The digit in the tenths place is a 2.

Which number could be the number Della wrote?

- F** 537,106.24
- G** 17,420
- H** 27,389.04
- J** 70.24

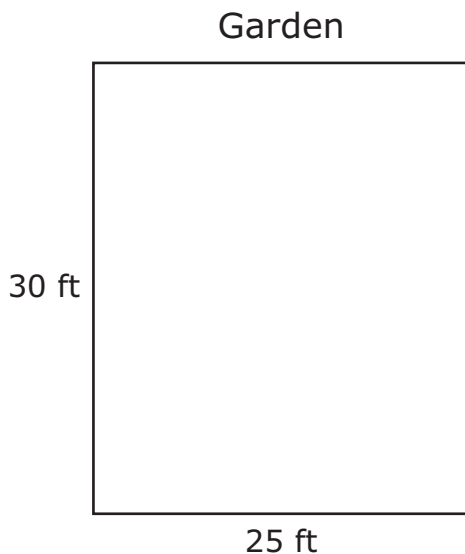
- 25** The shaded parts of the model represent the combined fraction of a small pie that Darrell and Nani ate. Darrell ate $\frac{2}{9}$ of the pie.



What fraction of the pie did Nani eat?

- A** $\frac{5}{9}$
- B** $\frac{3}{9}$
- C** $\frac{2}{9}$
- D** $\frac{4}{9}$

- 26** Harrison has a rectangular garden in his backyard. The dimensions are shown in feet.



What is the perimeter of the garden in feet?

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

-
- 27** There are 20 rows of pumpkins on a farm. There are 6 pumpkins in each row. A farmer will use 3 trucks to take all of the pumpkins to a market. The farmer will put the same number of pumpkins in each truck.

How many pumpkins will be in each truck?

- A** 120
- B** 40
- C** 360
- D** 26

28 This chart shows four comparisons.

W	$\frac{8}{12} < \frac{8}{10}$
X	$\frac{8}{12} < \frac{4}{6}$
Y	$\frac{8}{12} < \frac{9}{12}$
Z	$\frac{8}{12} < \frac{6}{8}$

Which of these comparisons are true?

- F** Only W
 - G** Only X and Z
 - H** Only W, Y, and Z
 - J** None of these
-

29 A customer bought almonds and walnuts at a grocery store.

- The customer bought 1 pound 15 ounces of almonds.
- The customer also bought 3 pounds 4 ounces of walnuts.

What is the total amount of almonds and walnuts in pounds and ounces that the customer bought?

- A** 4 lb 3 oz
- B** 5 lb 9 oz
- C** 4 lb 11 oz
- D** 5 lb 3 oz

30 Paul threw a baseball 18.7 meters. Which fraction is equivalent to 18.7?

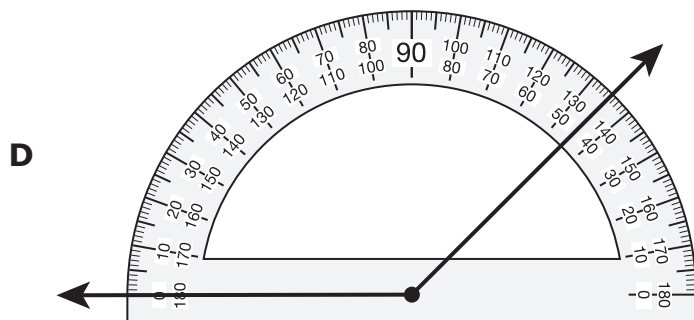
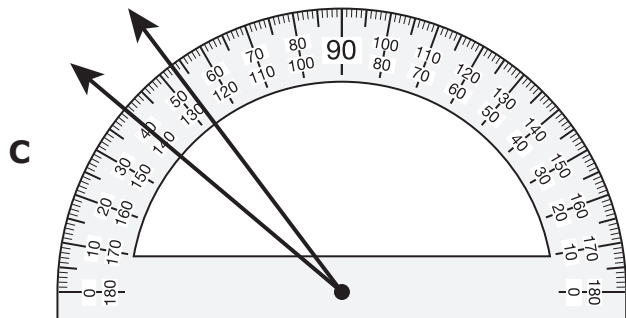
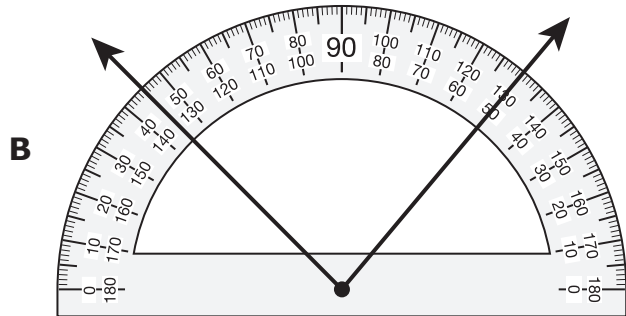
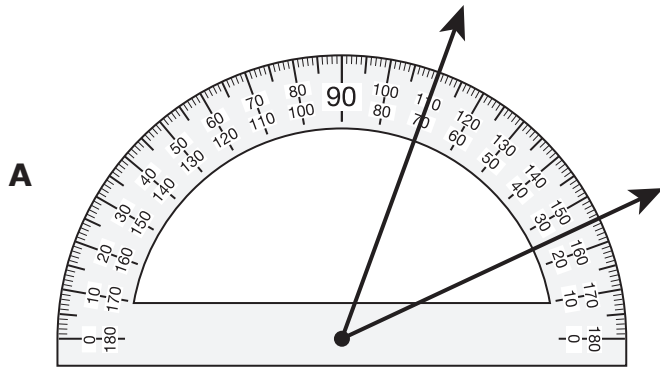
F $18\frac{7}{100}$

G $\frac{18}{70}$

H $18\frac{7}{10}$

J $\frac{187}{100}$

31 Which angle has a measure closest to 45° ?



32 The list shows the number of points scored by each student playing a math game.

3, 1, 5, 0, 3, 3, 3, 1, 3

Which frequency table represents all of the data in the list?

Math Game

F

Number of Points	Number of Students
0	
1	
2	
3	
4	
5	

Math Game

H

Number of Points	Number of Students
0	
1	
2	
3	
4	
5	

Math Game

G

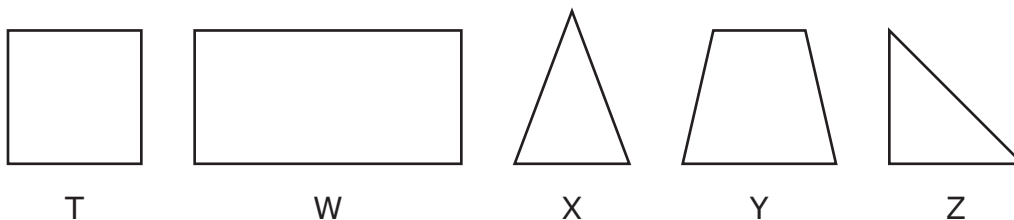
Number of Points	Number of Students
0	
1	
2	
3	
4	
5	

Math Game

J

Number of Points	Number of Students
0	
1	
2	
3	
4	
5	

33 A group of figures is shown.



Which list shows all the figures in the group that appear to have at least one right angle?

- A** Figures T, W, and Y only
- B** Figures T, W, and Z only
- C** Figures T and Z only
- D** Figures X and Z only

34 The table shows a relationship between input numbers and output numbers.

Number Machine

Input	Output
1	10
2	11
3	12
4	13

Which rule can be used to find the output number when the input number is given?

- F** $- 9$
- G** $\times 10$
- H** $\times 4$
- J** $+ 9$



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