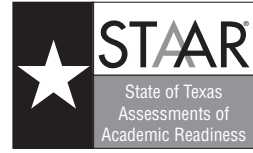# STAAR®

State of Texas Assessments of Academic Readiness

GRADE 5
Mathematics

Administered March 2017

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

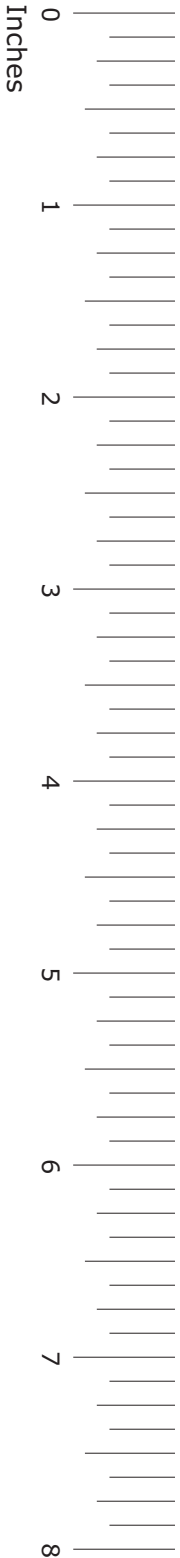Cube $V = s \times s \times s$

Rectangular prism $V = l \times w \times h$ or $V = Bh$

Inches
0
1
2
3
4
5
6
7
8

STAAR GRADE 5 MATHEMATICS REFERENCE MATERIALS

LENGTH

Customary	Metric
1 mile (mi) = 1,760 yards (yd)	1 kilometer (km) = 1,000 meters (m)
1 yard (yd) = 3 feet (ft)	1 meter (m) = 100 centimeters (cm)
1 foot (ft) = 12 inches (in.)	1 centimeter (cm) = 10 millimeters (mm)

VOLUME AND CAPACITY

Customary	Metric
1 gallon (gal) = 4 quarts (qt)	1 liter (L) = 1,000 milliliters (mL)
1 quart (qt) = 2 pints (pt)	
1 pint (pt) = 2 cups (c)	
1 cup (c) = 8 fluid ounces (fl oz)	

WEIGHT AND MASS

Customary	Metric
1 ton (T) = 2,000 pounds (lb)	1 kilogram (kg) = 1,000 grams (g)
1 pound (lb) = 16 ounces (oz)	1 gram (g) = 1,000 milligrams (mg)

Centimeters
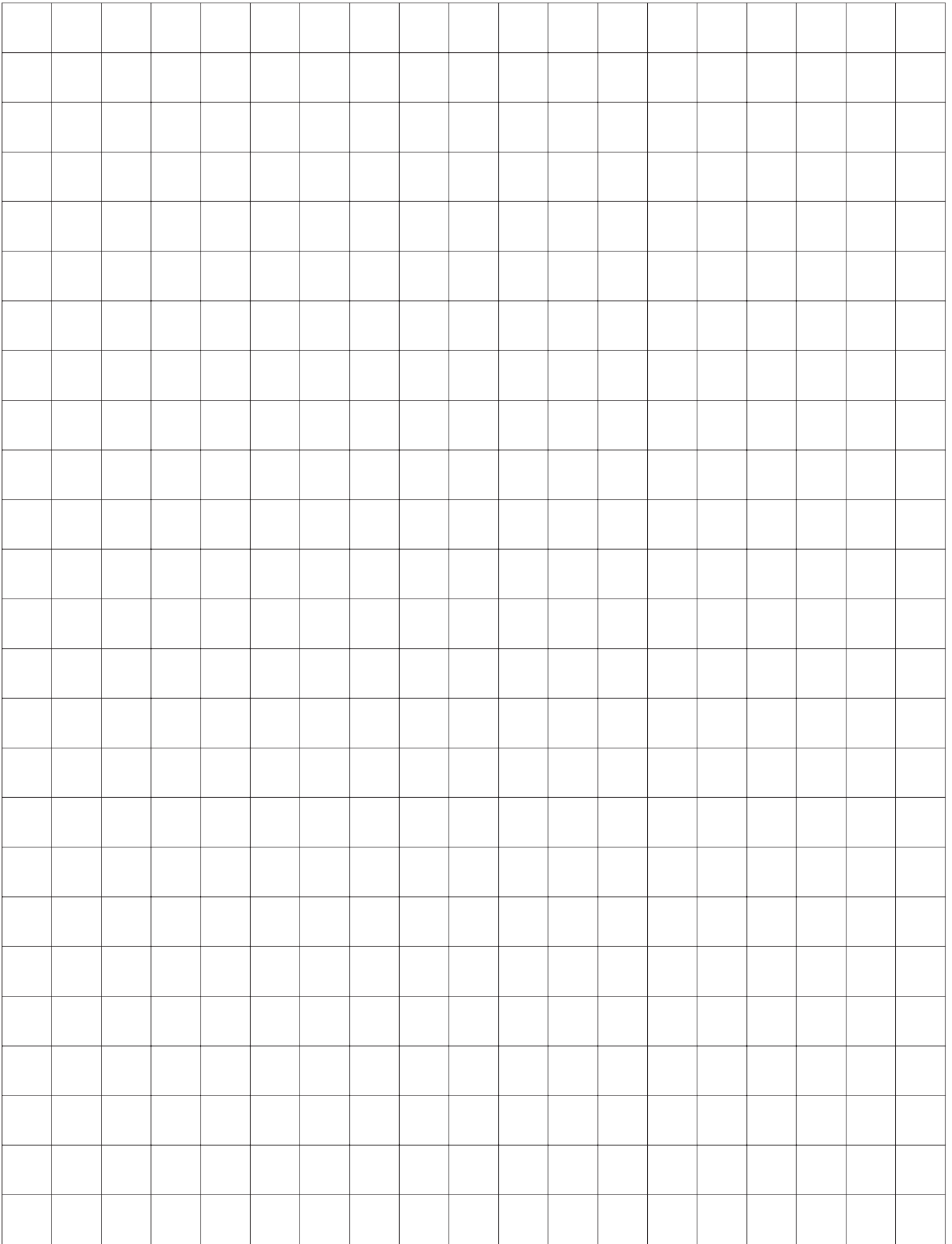
MATHEMATICS

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 Amber saved a total of $3.20 over 5 weeks. She saved the same amount of money each week. How much money did Amber save each week?

A $1.44

B $1.56

C $0.64

D $1.80

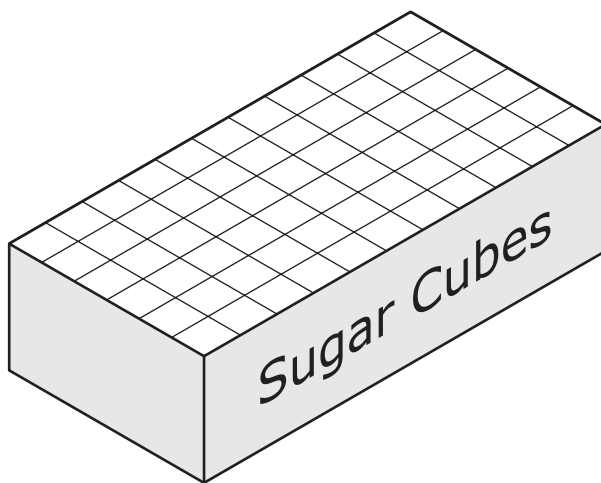**2** A scientist compared these two measurements.

13.068 kg ☐ 13.608 kg

Which symbol makes this comparison true?

F >

G <

H =

J +

**3** Emily has a box shaped like a rectangular prism that is full of sugar cubes.

- Each sugar cube has a volume of 1 cubic centimeter.
- The top layer has a width of 6 cm and a length of 11 cm.
- There are 3 layers of sugar cubes.

How many sugar cubes are in the box?

A 198

B 66

C 594

D 99

4 The shaded part of the model represents a fraction. Another fraction was subtracted from the first fraction.
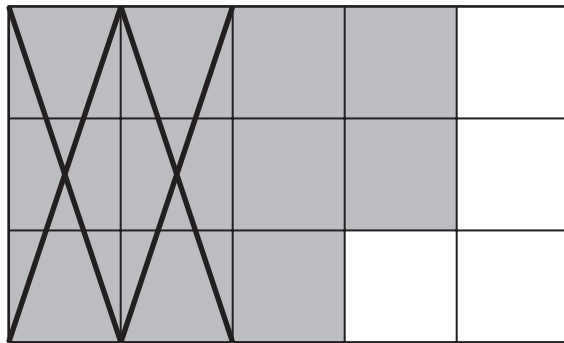
Which expression does the model represent?

F $\dfrac{11}{15} - \dfrac{1}{6}$

G $\dfrac{11}{12} - \dfrac{6}{12}$

H $\dfrac{6}{15} - \dfrac{4}{15}$

J $\dfrac{11}{15} - \dfrac{2}{5}$

GO ON

5 The relationship between numbers in List X and List Y follows the rule $y = x + 2.05$. Which diagram shows this relationship?

A

List X		List Y
29.1	→	31.6
34.1	→	36.6
39.1	→	41.6
44.1	→	46.6

C

List X		List Y
29.1	→	31.15
34.1	→	36.15
39.1	→	41.15
44.1	→	46.15

B

List X		List Y
31.15	→	33.15
33.2	→	35.2
35.25	→	37.25
37.3	→	39.3

D

List X		List Y
31.15	→	29.1
36.15	→	34.1
41.15	→	39.1
46.15	→	44.1

---

6 A rectangular billboard is 9.35 meters wide and 6.82 meters tall. What is the perimeter of the billboard in meters?

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

7 The stem and leaf plot shows the numbers of minutes the members of a team jumped rope during practice.

Practice Times

Stem	Leaf
1	9 9
2	0 1 3
3	3 4 6 7
4	1 1 3 5 9 9
5	0 4 2
6	3 5 6

3|6 means 36 minutes.

What is the difference between the least number of minutes jumped and the greatest number of minutes jumped?

A 47

B 9

C 5

D 49

---

8 The math team does practice drills that each last $\frac{1}{6}$ hour. In February the team did practice drills for a total of 24 hours.

How many practice drills did the math team do in February?

F 4

G 144

H 30

J 240

9 What are the coordinates of the point where the *x*-axis and the *y*-axis intersect on a coordinate plane?

A (5, 5)

B (5, 0)

C (0, 5)

D (0, 0)

---

10 The table shows the heights and masses of a male gorilla and a female gorilla at a zoo.

Gorillas

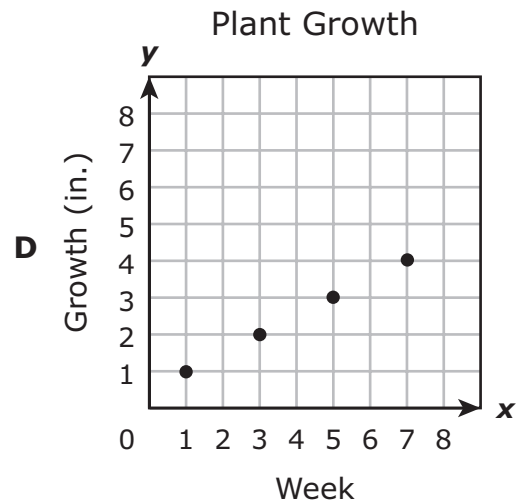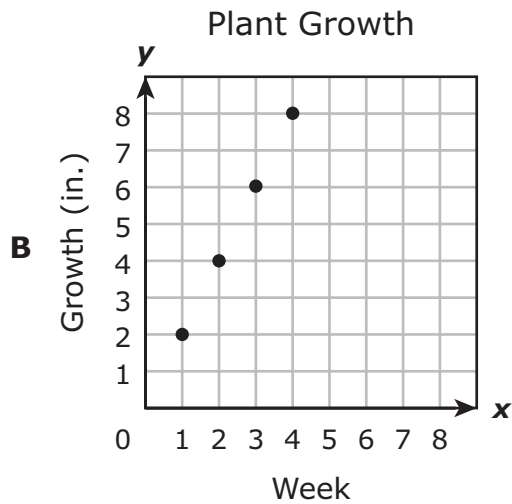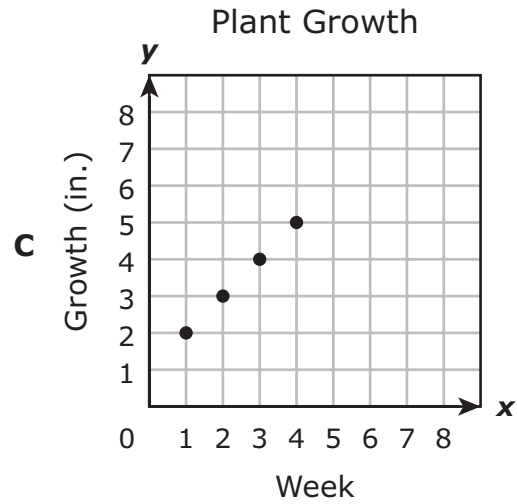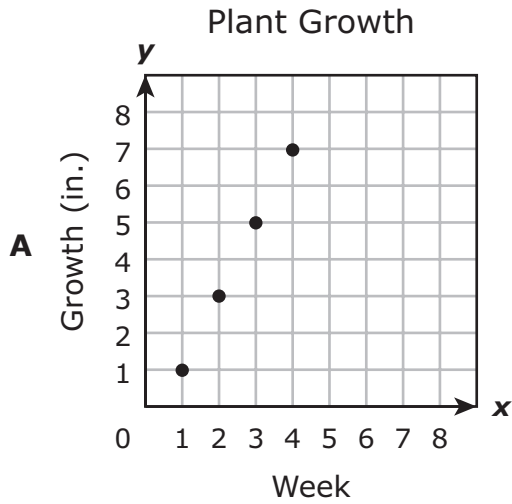|	Height (m)	Mass (kg)
Male	1.68	158.757
Female	1.448	95.25

Based on the table, which statement is true?

F The combined mass of the male gorilla and the female gorilla is 253.782 kg.

G The mass of the male gorilla is 63.507 kg greater than the mass of the female gorilla.

H The female gorilla is 1.28 m shorter than the male gorilla.

J The combined height of the male gorilla and the female gorilla is 2.028 m.

11 Thomas planted a seed and measured the height of the stem each week for four weeks.

- The stem grew 1 inch in the first week.
- The stem grew 2 inches each week after the first week.

Which graph represents the growth of this plant?

Plant Growth

A

Growth (in.)

Week

Plant Growth

C

Growth (in.)

Week

Plant Growth

B

Growth (in.)

Week

Plant Growth

D

Growth (in.)

Week

12 Aspen added 14 to the product of 224 and 16. What is this sum?

F 3,478

G 3,598

H 3,808

J 3,584

---

13 Brenda said that the number 2 is prime because it has only two factors. Carla said that the number 2 is composite because it is even, and all even numbers are composite. Who is correct?

A Brenda is correct.

B Carla is correct.

**C** Both of them are correct.

D Neither of them is correct.

---

14 Theo earned $500 selling food at a carnival. He earned $260 selling nachos and the rest selling hot dogs for $2 each. Theo used this equation to find h, the number of hot dogs he sold at the carnival.

$$h = (500 - 260) \div 2$$

How many hot dogs did Theo sell at the carnival?

F 380

G 180

H 370

J 120

15 In the diagram shown each circle represents a group of polygons. If a polygon belongs in a circle, it also belongs in any larger circle.

Quadrilaterals

Parallelograms

Rectangles
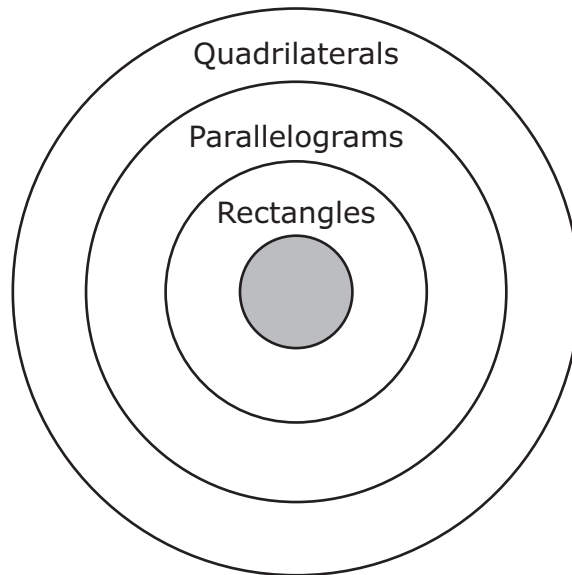
Which kind of polygon belongs in the shaded circle?

A Trapezoids

B Squares

C Pentagons

D Rhombuses

---

16 Margaret opened a new case of lightbulbs.

- The case contained 3 boxes of lightbulbs with 8 lightbulbs in each box.
- Margaret threw 2 of these lightbulbs in the trash because they were damaged.
- Then she took 7 of the lightbulbs out of the case.

Which expression can be used to show that there are 15 lightbulbs still in the case?

F $3 \times 8 - 2 + 7$

G $3(8) - 2(7)$

**H** $3 \times 8 - (2 + 7)$

J $3 + 8 - 2 + 7$

17 Mia's dog weighs 32.6 pounds. Lettie's dog weighs 3.8 times as much as Mia's dog. What does Lettie's dog weigh in pounds?

    A 36.40 lb

    B 12.388 lb

    C 96.48 lb

    D 123.88 lb

18 Mr. Ávalos has 9.375 liters of paint. What is this number rounded to the nearest hundredth?

    F 9.40

    G 9.38

    H 9.37

    J 9.47

19 The length of a piece of yarn is 19.2 units. Jesse cut the piece of yarn into 4 smaller pieces that were all the same length.

Which expression represents the length of each smaller piece of yarn?
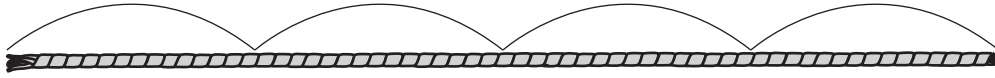
A 19.2×4

B $19.2 - 4$

C $19.2 \div 4$

D $19.2 + 4$

---

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

> A tax that includes Social Security and Medicare taxes and is paid by an employer

Which term best fits this definition?

F Payroll tax

G Property tax

H Sales tax

J Gasoline tax

21 A park bench is located $16\frac{3}{4}$ feet due north of an elm tree. A fountain is located $9\frac{1}{2}$ feet due south of the same elm tree.

What is the distance in feet between the park bench and the fountain?

A $26\frac{1}{4}$ ft

B $25\frac{1}{4}$ ft

C $25\frac{2}{3}$ ft

D 26 ft

---

22 In a school auditorium there are 33 seats in each row of seats. How many rows are needed for 528 students to each have a seat?

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

23 Nathan built the hanging mobile shown in the picture to show some relationships among shapes.
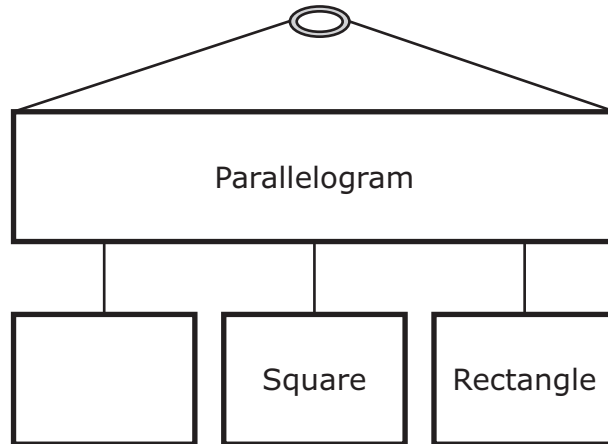
Which shape goes in the empty box in order to complete Nathan's mobile?

A Trapezoid

B Quadrilateral

C Rhombus

D Triangle

24 Which table represents the equation $y = 3x$?

F

x	y
3	1
6	2
15	5
18	6

H

x	y
1	1
3	3
5	5
7	7

G

x	y
1	3
3	9
4	12
7	21

J

x	y
1	3
4	9
6	12
7	18

25 Which list shows the numbers NOT in order from least to greatest?

A $4.036 < 4.08 < 4.2 < 4.201$

B $3.09 < 3.1 < 3.607 < 3.9$

C $6.4 < 6.51 < 6.387 < 6.995$

D $7.315 < 7.38 < 7.406 < 7.5$

GO ON

26 Mr. Gonzales is putting in a fence around the perimeter of a playground.

- The perimeter of the playground is 144 ft.
- Each section of the fence is 4 ft long and costs $12.

Which equation can Mr. Gonzales use to find b, the cost of the sections of fence he needs for the playground?
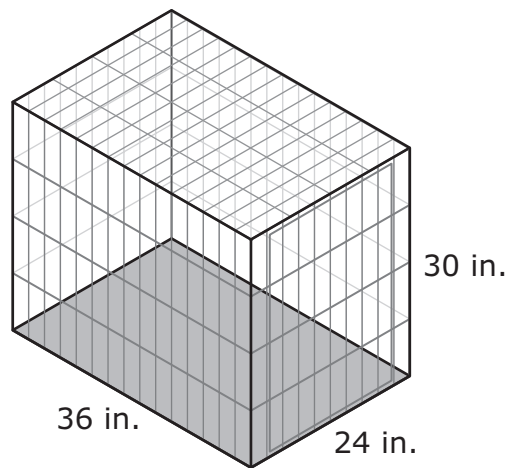
F $144 \div (12 \div 4) = b$

G $(12 \times 4) \times 144 = b$

H $144 \div (12 \times 4) = b$

**J** $(144 \div 4) \times 12 = b$

---

27 Gabriel bought a dog crate shaped like a rectangular prism with the dimensions shown in the model.

30 in.

36 in.

24 in.

What is the area in square inches of the shaded floor of the dog crate?

A 864 square inches

B 1,080 square inches

C 720 square inches

D 1,296 square inches

28 The graph shows the number of students at five schools who ride the bus to school.

Riding the Bus to School
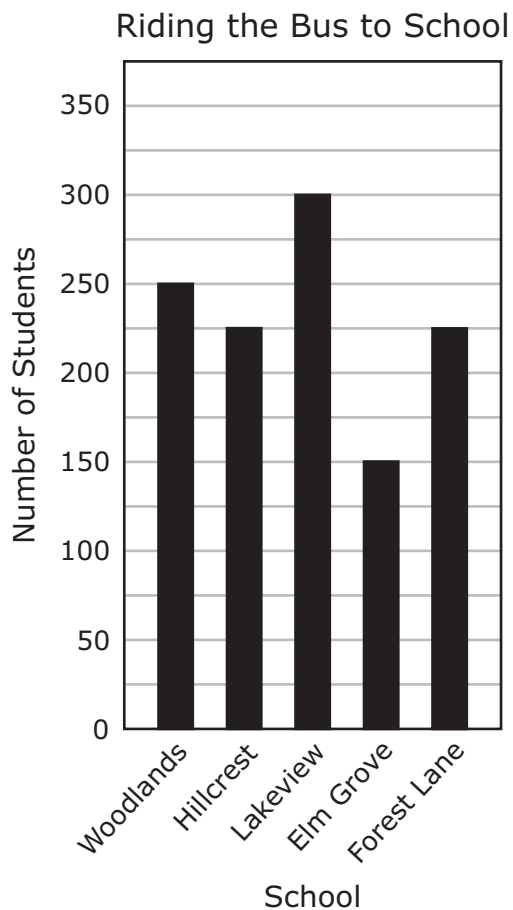
Based on the graph, how many students ride the bus to the Woodlands, Hillcrest, and Lakeview schools?

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

**29** Ms. Olsen has $\frac{1}{8}$ acre of land divided into 6 equal parts. What is the size of each part?
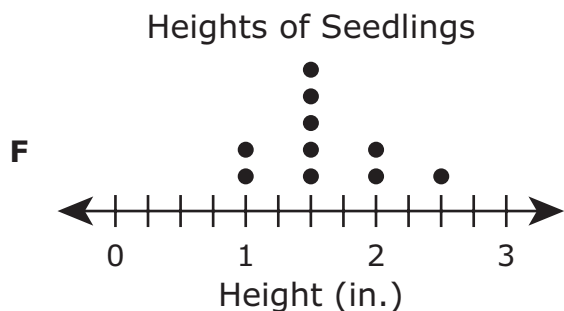
A $\frac{1}{2}$ acre

B $\frac{1}{14}$ acre

C $\frac{3}{4}$ acre

D $\frac{1}{48}$ acre

---

30 The table shows the heights of 10 seedlings.

Heights of Seedlings

Seedling	A	B	C	D	E	F	G	H	I	J
Height (in.)	$1\frac{1}{4}$	2	$1\frac{1}{4}$	$1\frac{1}{2}$	$\frac{3}{4}$	$2\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	1	2

Which dot plot represents these data?

F Heights of Seedlings
Height (in.)

H Heights of Seedlings
Height (in.)

G Heights of Seedlings
Height (in.)

J Heights of Seedlings
Height (in.)

GO ON
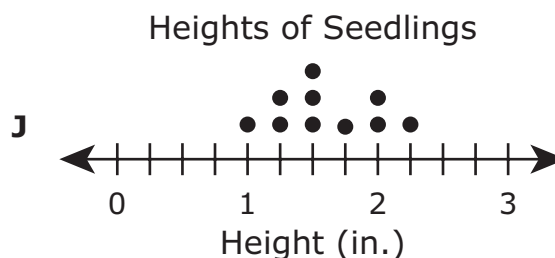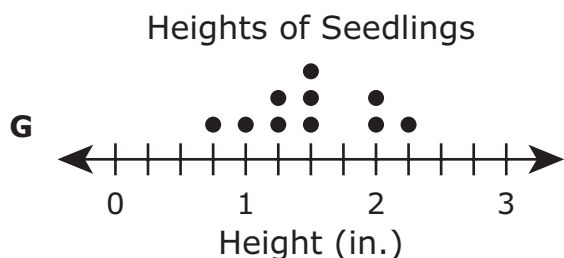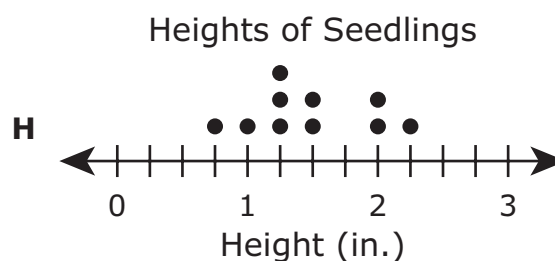
31 The list shows the length of a day on two different planets.

- Neptune: 16.11 hours
- Venus: 5,832.40 hours

Which statement is best supported by this information?

A A day on Venus is about 40 times as long as a day on Neptune.

B A day on Venus is about 400 times as long as a day on Neptune.

C A day on Venus is about 50 times as long as a day on Neptune.

D A day on Venus is about 500 times as long as a day on Neptune.

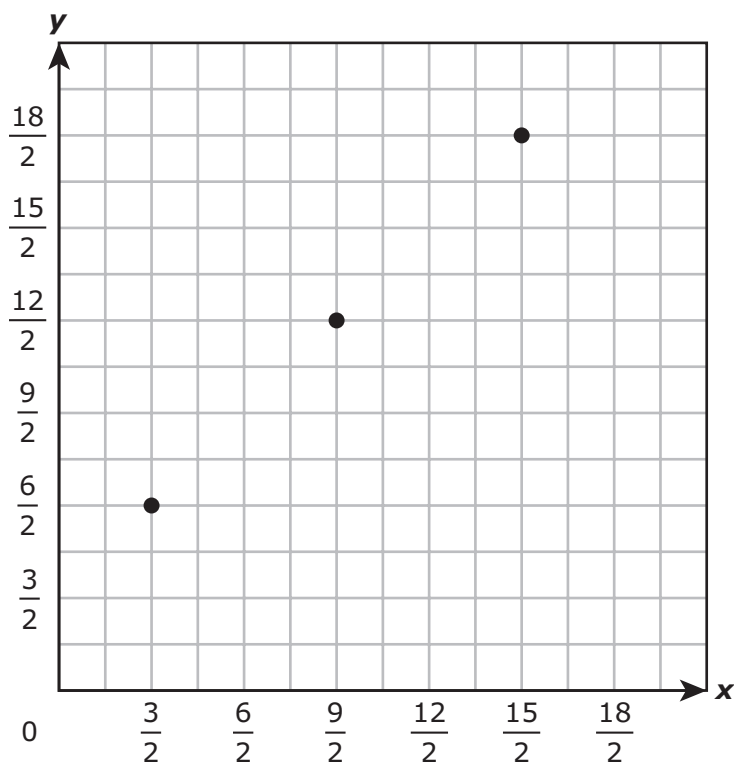**32** An expression is shown.

$$8 \times (3.8 + 13.2) - 6$$

What value is equivalent to the expression?

F 37.6

G 61.4

H 130

J 88

---

33 Ms. Sikes paid a total of $95.40 for a 12-month magazine subscription. She paid the same amount each month. What amount did Ms. Sikes pay each month?

A $7.95

B $7.96

C $1,144.80

D $107.40

34 Three points are plotted on the coordinate grid.

Which table represents the data plotted in the graph?

F

x	$\frac{6}{2}$	$\frac{12}{2}$	$\frac{18}{2}$
y	$\frac{3}{2}$	$\frac{9}{2}$	$\frac{15}{2}$

H

x	$\frac{3}{2}$	$\frac{6}{2}$	$\frac{9}{2}$
y	$\frac{6}{2}$	$\frac{12}{2}$	$\frac{18}{2}$

G

x	$\frac{3}{2}$	$\frac{9}{2}$	$\frac{15}{2}$
y	$\frac{6}{2}$	$\frac{12}{2}$	$\frac{15}{2}$

J

x	$\frac{3}{2}$	$\frac{9}{2}$	$\frac{15}{2}$
y	$\frac{6}{2}$	$\frac{12}{2}$	$\frac{18}{2}$

GO ON

35 Mr. Roosevelt has 48 nails that each weigh 1.35 ounces. What is the weight of these nails in ounces?

A 50.4 oz

B 40.4 oz

C 64.8 oz

D 16.2 oz

---

36 The shaded cube has a volume of 1 cubic unit. Cubes like this one will be used to completely fill a rectangular prism that has the dimensions shown.

= 1 cubic unit

6 units

8 units

10 units
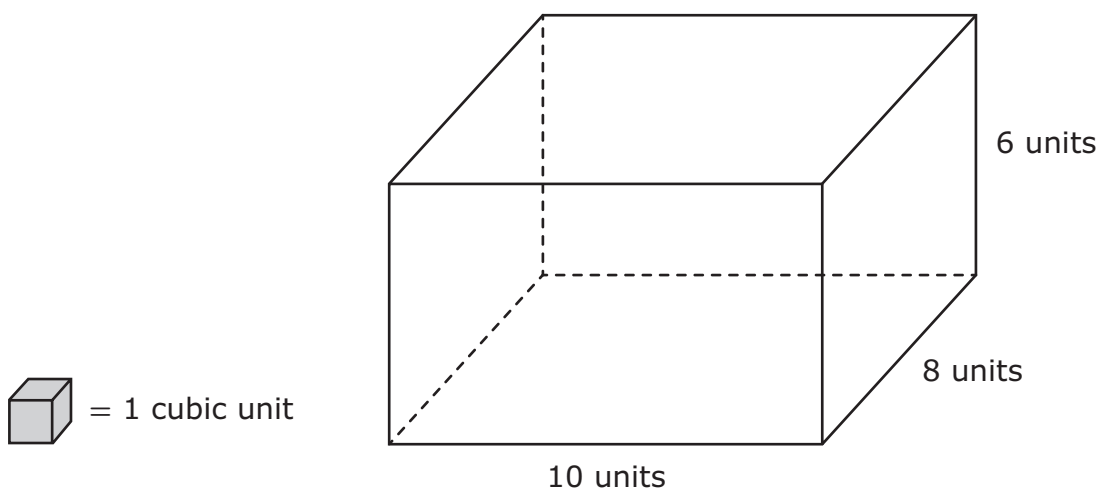
How many of these shaded cubes will be needed to completely fill the rectangular prism?

F 48

G 80

H 160

J Not here

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

STOP

STAAR
GRADE 5
Mathematics
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