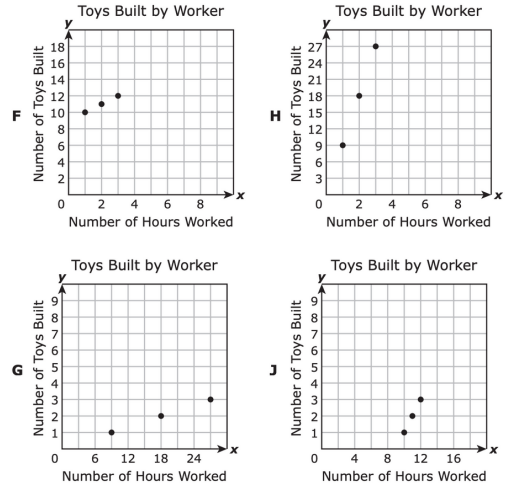A worker is building toys at a factory. The relationship between the number of hours the employee works, *x*, and the number of toys the employee builds, *y*, is represented by the equations $y = 9x$.

Which graph represents this relationship?

Toys Built by Worker

F

Number of Toys Built (y-axis): 2, 4, 6, 8, 10, 12, 14, 16, 18
Number of Hours Worked (x-axis): 0, 2, 4, 6, 8

Toys Built by Worker

H

Number of Toys Built (y-axis): 3, 6, 9, 12, 15, 18, 21, 24, 27
Number of Hours Worked (x-axis): 0, 2, 4, 6, 8

Toys Built by Worker

G

Number of Toys Built (y-axis): 1, 2, 3, 4, 5, 6, 7, 8, 9
Number of Hours Worked (x-axis): 0, 6, 12, 18, 24

Toys Built by Worker

J

Number of Toys Built (y-axis): 1, 2, 3, 4, 5, 6, 7, 8, 9
Number of Hours Worked (x-axis): 0, 4, 8, 12, 16

The table shows the weights in tons of four cars.

Which statement is true?

A The weight of Car S is less than the weight of Car T.

B The weight of Car Q is greater than the weight of Car R.

C The weight of Car R is less than the weight of Car T.

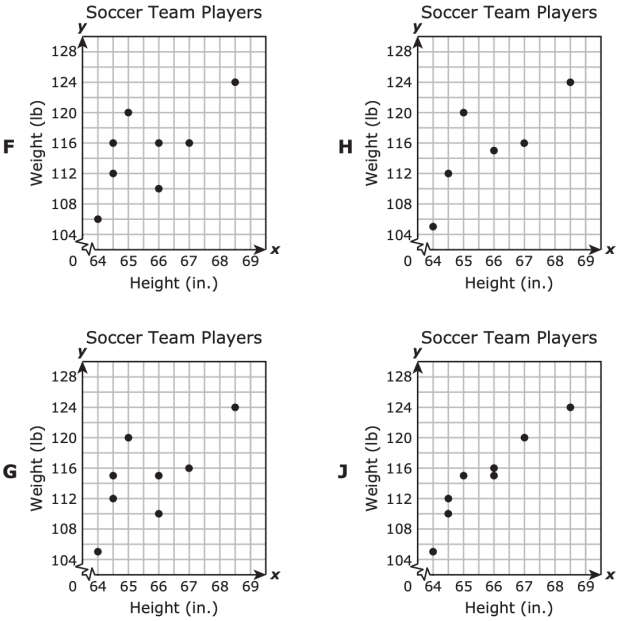**D** The weight of Car S is greater than the weight of Car Q.

Weights of Cars

Car	Weight (tons)
Q	1.269
R	1.314
S	1.281
T	1.238

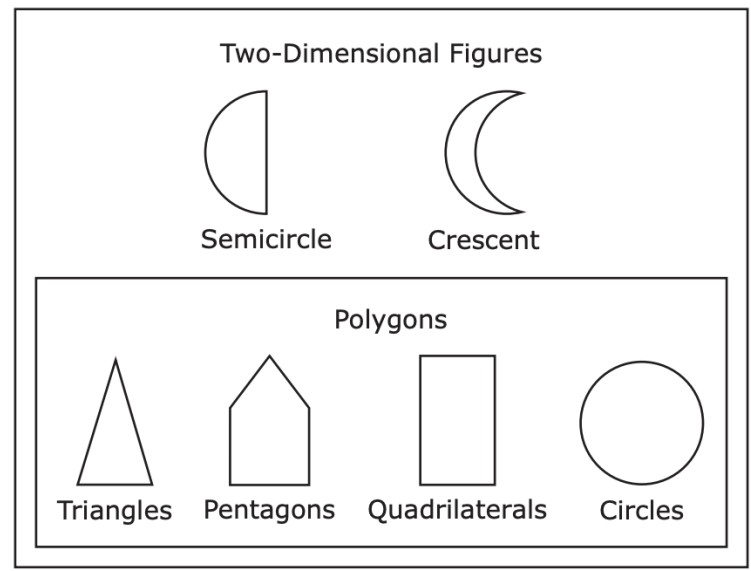A youth soccer team has eight players. The table shows the height and the weight of each of the eight players.

Soccer Team Players

Height (in.)	64	66	64.5	68.5	67	66	65	64.5
Weight (lb)	105	115	112	124	116	110	120	115

Which scatterplot best represents the data in the table?

Soccer Team Players

F

Weight (lb) (y-axis): 104, 108, 112, 116, 120, 124, 128
Height (in.) (x-axis): 0, 64, 65, 66, 67, 68, 69

Soccer Team Players

H

Weight (lb) (y-axis): 104, 108, 112, 116, 120, 124, 128
Height (in.) (x-axis): 0, 64, 65, 66, 67, 68, 69

Soccer Team Players

G

Weight (lb) (y-axis): 104, 108, 112, 116, 120, 124, 128
Height (in.) (x-axis): 0, 64, 65, 66, 67, 68, 69

Soccer Team Players

J

Weight (lb) (y-axis): 104, 108, 112, 116, 120, 124, 128
Height (in.) (x-axis): 0, 64, 65, 66, 67, 68, 69

Which shape is NOT sorted correctly in the graphic organizer?

Two-Dimensional Figures

Semicircle   Crescent

Polygons

Triangles   Pentagons   Quadrilaterals   Circles
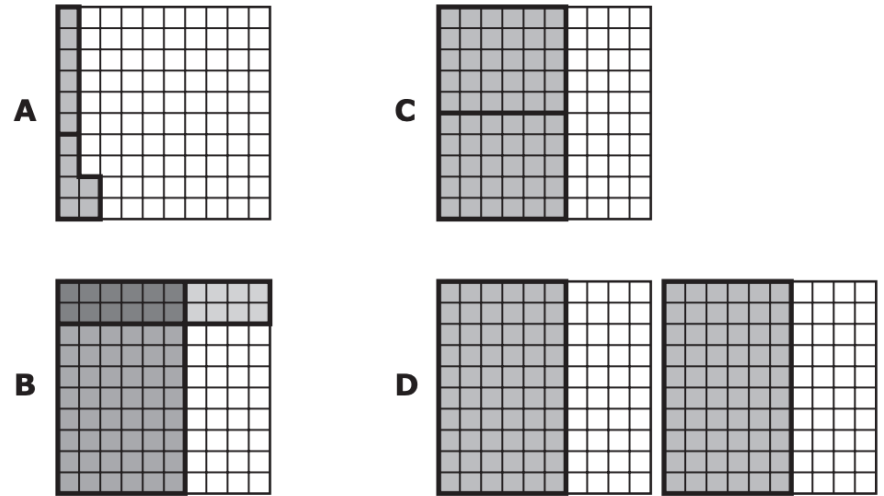
Marisol used a number machine to create ordered pairs of numbers based on a rule. Some ordered pairs are shown.

0.5 → | In (x)   Out (y) | → 2.0
1.0 → | In (x)   Out (y) | → 2.5
1.5 → | In (x)   Out (y) | → 3.0
2.5 → | In (x)   Out (y) | → 4.0
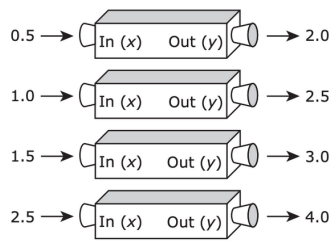
Which graph best represents the ordered pairs?

A

C

B

D
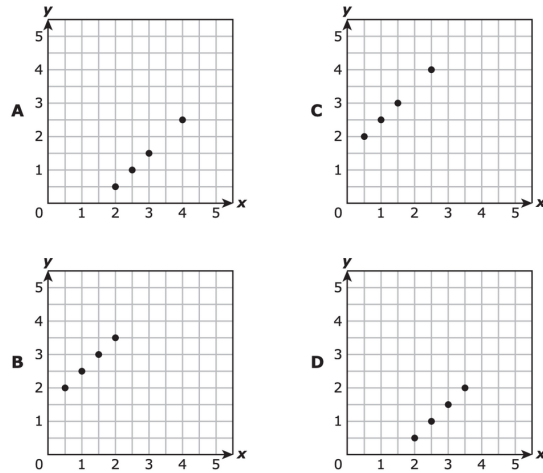
Which model represents 0.6 ÷ 2 = 0.30?

A

C

B

D

Carmella plotted the ordered pair (1, 3) on a coordinate grid by moving 1 unit up and 3 units left from the origin. Which statement is true?

A Carmella plotted both the *x*-coordinate and the *y*-coordinate incorrectly.

B Carmella plotted the *x*-coordinate incorrectly and the *y*-coordinate correctly.

C Carmella plotted the *x*-coordinate correctly and the *y*-coordinate incorrectly.

D Carmella plotted both the *x*-coordinate and the *y*-coordinate correctly.

What is the value of this expression?

$$1/5 \div 30$$

A 1/150

B 1/6

C 6

D 150

An equation is modeled on the number line.

Which equation does this model represent?

0   1

A $7/8 - 1/4 = 6/8$

B $7/8 + 1/4 = 9/8$

C $7/8 - 1/4 = 5/8$

D $7/8 + 2/8 = 9/16$

Elsa and a group of her friends always sit together at lunch. Every day students join them at the table where they sit. The table below shows the relationship between the number of students joining Elsa and her friends and the total number of students sitting at the table.

The type of relationship that exists between the number of students joining and the total number of students at the table is _.

A An additive relationship, because the pattern is to add 5 to the number of students joining in order to get the total number of students at the table

B A multiplicative relationship, because the total number of students at the table is greater than the number of students joining

C An additive relationship, because the number of students joining is less than the total number of students at the table

D A multiplicative relationship, because the pattern is to multiply the number of students joining by 5 in order to get the total number of students at the table

Students at the Lunch Table

Day	Number of Students Joining	Total Number of Students at the Table
Monday	3	8
Tuesday	2	7
Wednesday	8	13
Thursday	5	10

The figure shows the base layer of a rectangular prism that Sophie built using blocks.

* The prism was made by stacking 10 layers of the blocks.
* Each layer was identical to the base layer.
* Each block has a volume of 1 cubic unit

What is the volume of the rectangular prism that Sophie built?

A 150 cubic units
B 40 cubic units
C 180 cubic units
D 300 cubic units

Base Layer

The table shows the times that it took five students to complete a set of math problems.

If the times are ordered from least to greatest number of minutes, in what position would Nellie's time be?

A Second
B Third
C Fourth
D Fifth

Completion Times

Student	Time (min)
Mario	12.068
Rosa	11.450
Chris	12.495
Jessica	11.50
Nellie	12.085

Which answer choice best describes the *x*-coordinate in an ordered pair?

A The horizontal line composed of the set of points that all have a *y*-coordinate of 0.
B The first number in an ordered pair that determines the movement left or right from the origin on a coordinate grid.
C The second number in an ordered pair that determines the movement up or down from the origin on a coordinate grid.
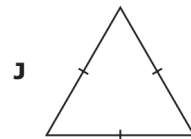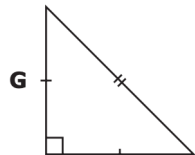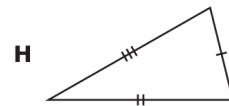**D** The intersection of two lines on a coordinate grid.

An expression is given.

$$3(25 + 19) + 4(3)$$

What is the value of this expression?

The graphic organizer shown can be used to classify triangles.
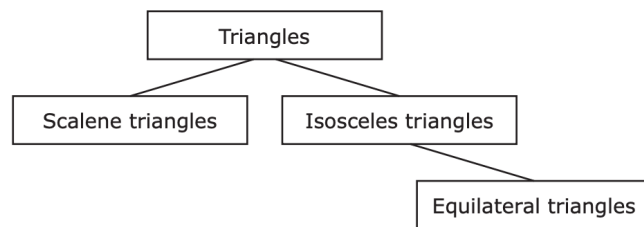
Which triangle can be classified as scalene?
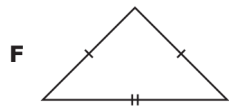
What is 2.938 rounded to the nearest hundredth?

Which graph includes only points that follow the rule $y = x + 3$?

A

C

B

D
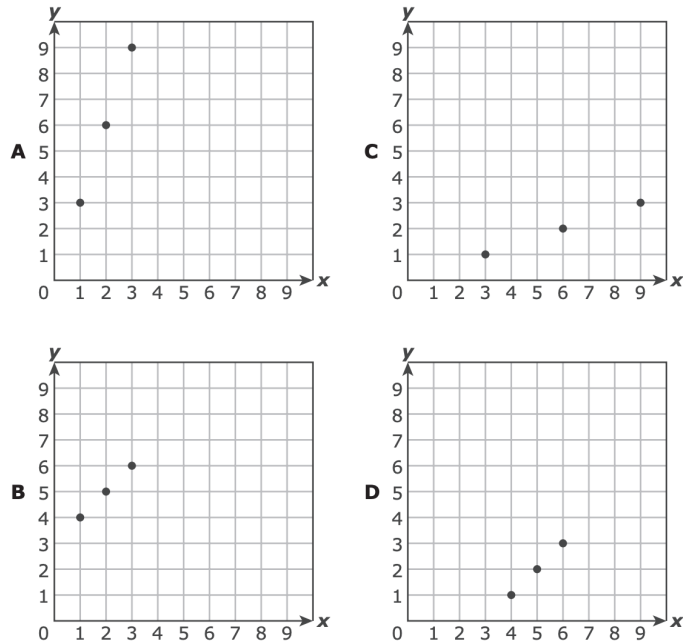
Each ticket to ride a carousel costs $2.50. The table shows the relationship between x, the number of tickets bought, and y, the cost of the tickets in dollars.

Carousel Rides

Number of Tickets, x	Cost, y (dollars)
1	2.50
2	5.00
3	7.50
5	12.50

Which graph best represents the data shown in the table?

F

H

G

J
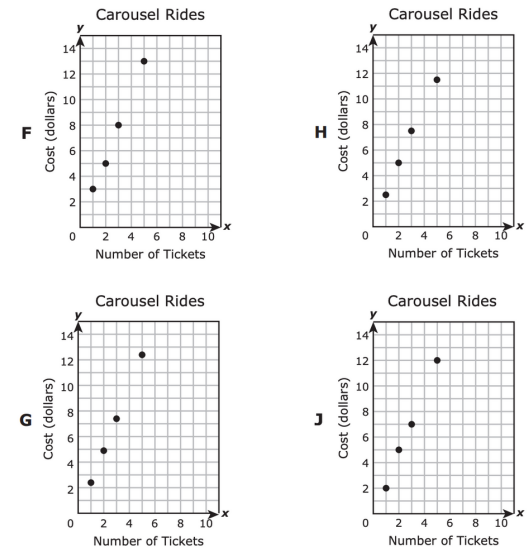
Which operation should be performed first when simplifying this expression?

$$40 \div (5 + 3) \times 8 + 1$$

A $40 \div 5$, because it is the first operation when reading left to right

B $5 + 3$, because the operation in the parentheses should be performed first

C 3×8, because multiplication should be performed before addition

D $8 + 1$, because it is the first operation when reading right to left

---

The table shows the relationship between the numbers of soft pretzels customers bought at a store and the total cost of the pretzels in dollars.

Soft Pretzels

Number of Soft Pretzels, x	Total Cost, y (dollars)
1	3.50
2	7.00
3	10.50
4	14.00

Which graph best represents the data from the table?
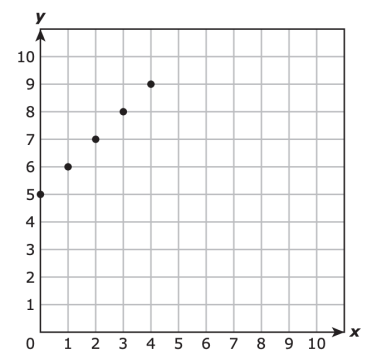
F

H

G

J
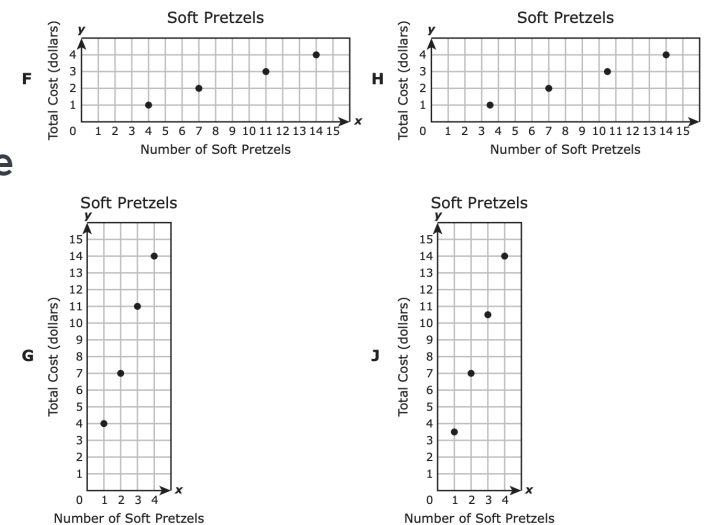
The mass in kilograms of an ice chest is shown in expanded notation.

$$(1 \times 10) + (3 \times 1) + (6 \times 0.1) + (1 \times 0.01)$$

What is the mass in kilograms, written as a numeral?

The points plotted on the coordinate grid represent the rule $y = x + 5$.

Which table also represents this rule?

A

x	y
9	4
11	6
14	9
20	15

B

x	y
4	9
5	10
6	11
7	12

C

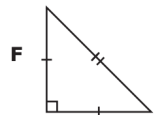| x	y
5	10
6	15
7	20
8	25

D

x	y
4	20
5	25
6	30
7	35

This Venn diagram shows the relationship between some types of triangles.
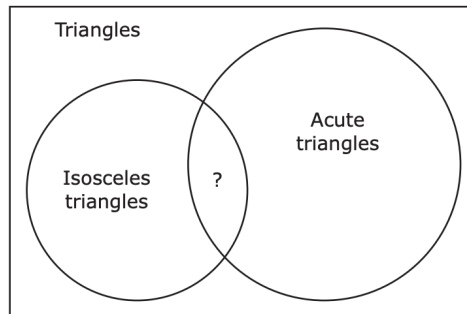
Which triangle belongs in the intersection of "Acute triangles" and "Isosceles triangles"?
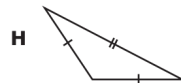
The table shows the times it took four runners to finish a race.

Which comparison of these times is NOT correct?

A $20.3 < 20.35$

**B** $19.795 > 19.8$

C $19.8 < 20.3$

D $20.35 > 19.795$

Race Times

| Runner	Time (minutes)
W	20.3
X	19.795
Y	20.35
Z	19.8

Which statement is NOT true about a coordinate grid?

A The vertical number line is the *y*-axis.
B In a coordinate grid, the *x*-axis and the *y*-axis are perpendicular to each other.
C The *x*-coordinate is the second number in an ordered pair.
D The origin is the intersection of the *x*-axis and the *y*-axis.

This model is shaded to represent 1 whole.
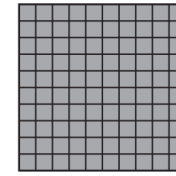
Which model represents $0.9 \times 0.4 = 0.36$?

F

H

G

J
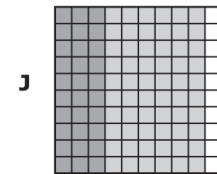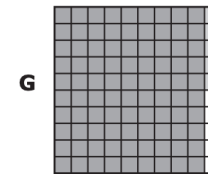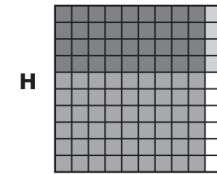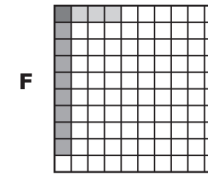
Two numbers are shown. A number in between is missing.

6.027 _____ 6.009

Which number can be placed on the line to show the numbers in order from greatest to least?
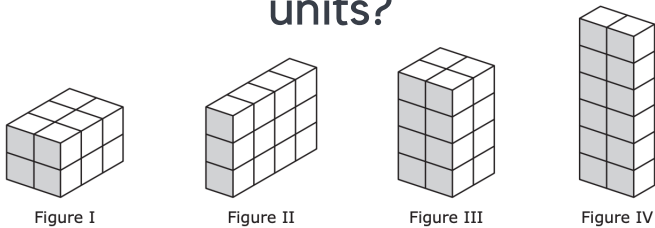
A 6.25
B 6.02
C 6.005
D 6.028

What is the value of this expression?

$$10[3 + (7 + 5) \div 3]$$

The four figures shown are rectangular prisms made of unit cubes.

Which figures have a volume of 12 cubic units?

Figure I   Figure II   Figure III   Figure IV

A   Figures II and IV only
B   Figures I and III only
C   Figures I, II, and IV only
D   Figures I, II, III, and IV

Jaylen was told to list all prime numbers between 30 and 50. Jaylen's list is shown.
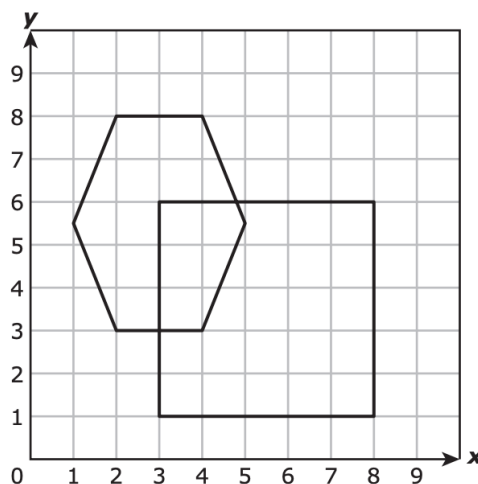
31, 37, 41, 47

Which prime number is missing from Jaylen's list?

A   49
B   39
C   43
D   33

There are two shapes drawn on the coordinate grid, as shown.

Which ordered pair represents a point that is inside both shapes?

A   (3.5, 5.5)
B   (5.5, 3.5)
C   (4.5, 2.5)
D   (2.5, 4.5)

Which table contains only x-values and y-values that make the equation $y = 4.8x$ true?

F

x	y
2	9.6
4	19.2
6	28.8
8	38.4

H

x	y
2	4.8
4	9.6
6	14.4
8	19.2

G

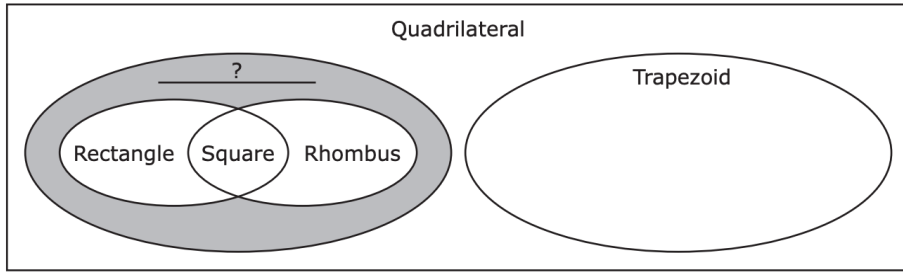| x	y
3	7.8
5	9.8
7	11.8
9	13.8

J

x	y
3	14.4
5	19.2
7	24.0
9	28.8

Quadrilaterals can be classified using the graphic organizer shown.

Which term best classifies the shapes that belong in the shaded section of the organizer?

A Parallelogram
B Polygon
C Pentagon
D None of these

Quadrilateral

?

Rectangle Square Rhombus

Trapezoid

Which model represents $4 \div 1/8$?

F

G

H

J

Which expression has a value of 25?

A $2(32 + 18) \div 4$
B $(10 \times 10) \div (2 \div 2)$
C $(50 \times 10) \div 5$
D $(10 + 10) \div 4$

A pet store owner will order dog beds for his shop. The relationship between x, the number of boxes he will order and y, the number of dog beds he will receive, can be represented by the equation $y = 12x$.

Which table contains only values that represent the equation?

A Dog Beds

Number of Boxes, x	Number of Dog Beds, y
3	36
6	72
9	108
15	180

C Dog Beds

Number of Boxes, x	Number of Dog Beds, y
3	36
6	72
9	108
15	144

B Dog Beds

Number of Boxes, x	Number of Dog Beds, y
2	14
6	18
10	22
14	26

D Dog Beds

Number of Boxes, x	Number of Dog Beds, y
2	24
6	36
10	48
14	60

Rebecca bought air filters at a store.

* She bought 8 air filters.
* Each air filter cost 16.95.
* Rebecca used a coupon for $7.50 off her total cost of the air filters.

The total cost in dollars that Rebecca paid for these air filters can be represented by this expression.

$$(8 \times 16.95) - 7.50$$

How much did Rebecca pay for these 8 air filters?

A $80.70
B $143.10
C $128.10
D $75.60

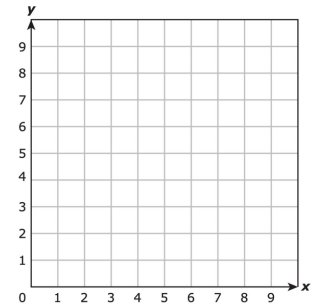Jim plotted the following ordered pairs on a coordinate grid.

(1, 3) (3, 6) (7, 6) (9, 3)

Jim connected the points with line segments to form a polygon. Which point is located inside the polygon?

A (4, 5)
B (8, 6)
C (5, 7)
D (3, 1)

What is 0.64 rounded to the nearest tenths place?

Jacob wrote the expression shown.

$$10 \div 5 + 4(72 - 6)$$

What do these parentheses indicate in the expression?

A Divide 10 by 5 before adding 4
B Multiply 4 by 72 before subtracting 6
C Add 5 and 4 together before subtracting 6 from 72
D Subtract 6 from 72 before multiplying by 4

Cheyenne works 15 hours a week at the movie theater. She earns $8 an hour.

Which statement about her weekly income is true?

A Her net income is more than $120
B Her gross income is less than $120
C Her net income is less than $120
D Her gross income is more than $120

Three friends rode their bikes last week.

* Christine rode her bike 27 kilometers.
* Philip rode his bike 12 kilometers less than Christine.
* Nathan rode his bike 3 times as far as Philip.

Which equation represents n, the distance in kilometers Nathan rode his bike?

A $(27 + 12) \div 3 = n$
B $(27 - 12) \div 3 = n$
C $(27 - 12) \div 3 = n$
D $(27 + 12) \times 3 = n$

A student used this graphic organizer to classify different figures.

Which figures belong in the part of the organizer labeled "Isosceles triangles"?

A Figures II and V only
B Figures I, III, and V only
C Figures I and III only
D Figures II, IV, and V only

Triangles

Isosceles triangles

Figure I   Figure II   Figure III   Figure IV   Figure V
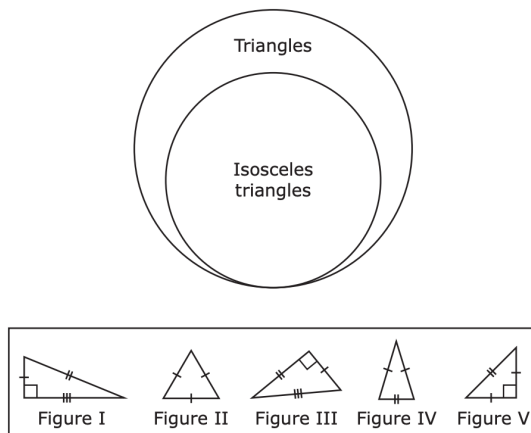
Four students are traveling to a math contest. The table shows the weights of the four students' suitcases.

In what position would Juan's suitcase be if the weights of the suitcases in pounds were ordered from greatest to least?
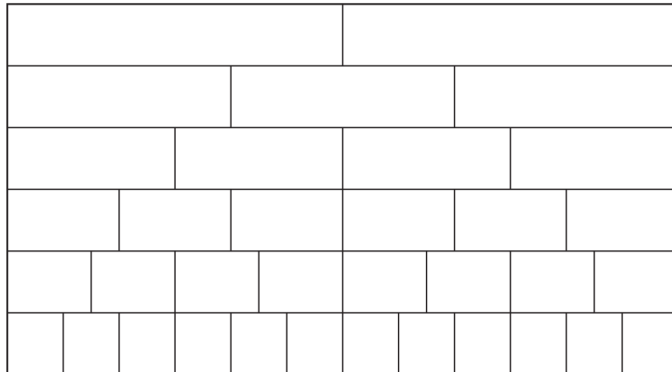
A First
B Second
C Third
D Fourth

Weights of Suitcases

Student	Weight of Suitcase (pounds)
Juan	21.605
Tiana	24.8
Kimberly	21.48
Emanuel	24.75

Vanna used the fraction strips shown to help her determine the difference between 5/6 and 1/4.

What is 5/6 − 1/4?

Fraction Strips

A 1/5

B 7/12

C 1/2

D 5/8

The hundredths model is shaded to represent a division problem.

Which equation is represented by the model?

KEY

= 1 whole
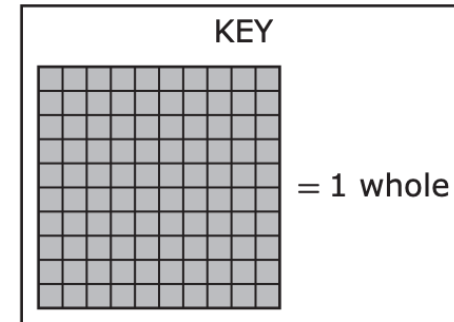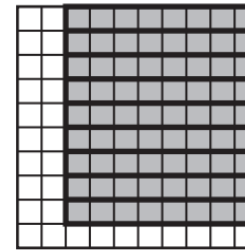
A 0.72 ÷ 9 = 9

B 0.72 ÷ 9 = 0.09

C 0.72 ÷ 9 = 8

D 0.72 ÷ 0 = 0.08

Yvonne is using a coordinate grid for the first time. She wants to find the location of the ordered pair (3, 7) on the grid.

Starting at the origin, which movement should Yvonne do first?

A Move right along the x-axis to 3

B Move up along the y-axis to 3

C Move right along the y-axis to 7

D Move up along the x-axis to 7

The model is shaded to represent the remaining one-half of a cake. Three friends will each receive an equal amount of the remaining cake until it is all gone.

Which equation can be used to determine the fraction of the whole cake each friend will receive?

Cake

A 1/2 × 3 = 3/2

B 1/2 × 6 = 6/2

C 1/2 ÷ 3 = 1/6

D 1/2 ÷ 6 = 1/12
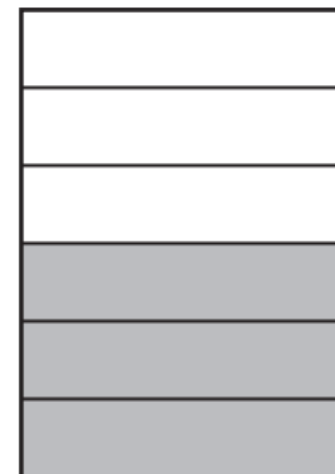
Which inequality is NOT true?

A $65.7 < 67.54$

B $4.003 > 4.03$

C $26.4 < 26/48$

D $0.91 > 0.097$

The table shows *x*-values and *y*-values for a number pattern.

Which statement is true?

A The pattern is multiplicative, because the *y*-values are 1.5 times the corresponding *x*-values.

B The pattern is multiplicative, because the *y*-values are 6 more than the corresponding *x*-values.

C The pattern is additive, because the *y*-values are 1.5 times the corresponding *x*-values.

D The pattern is additive, because the *y*-values are 6 more than the corresponding *x*-values.

x	y
12	18
24	30
48	54
60	66