Table of Contents

2021 STAAR Grade 3 Math New Item Types

1.

The expanded notation of a number is shown.

$$(3 \times 1{,}000) + (4 \times 100) + (9 \times 1)$$

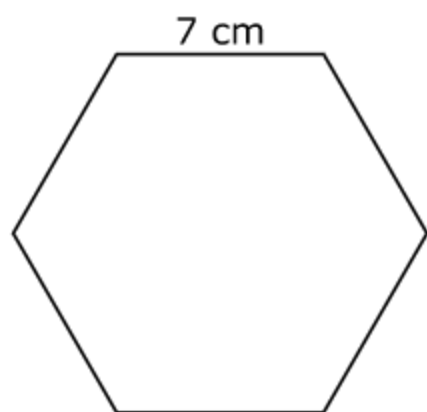What is the standard form of this number?

Enter your answer in the box.

1	2	3
4	5	6
7	8	9
0	$\frac{\square}{\square}$	

2.

The hexagon shown has sides that are each 7 centimeters in length.

7 cm

What is the perimeter of the hexagon in centimeters?

Enter your answer in the box.

| 1 | 2 | 3 |
4	5	6
7	8	9
0	$\frac{\square}{\square}$	

3.

Each student in a group of 30 chose 1 favorite flavor of ice cream:

- Chocolate was chosen by 7 students.

- Vanilla was chosen by 12 students.

- Strawberry was chosen by 11 students.

Complete the bar graph so that it shows the number of students who chose each flavor of ice cream

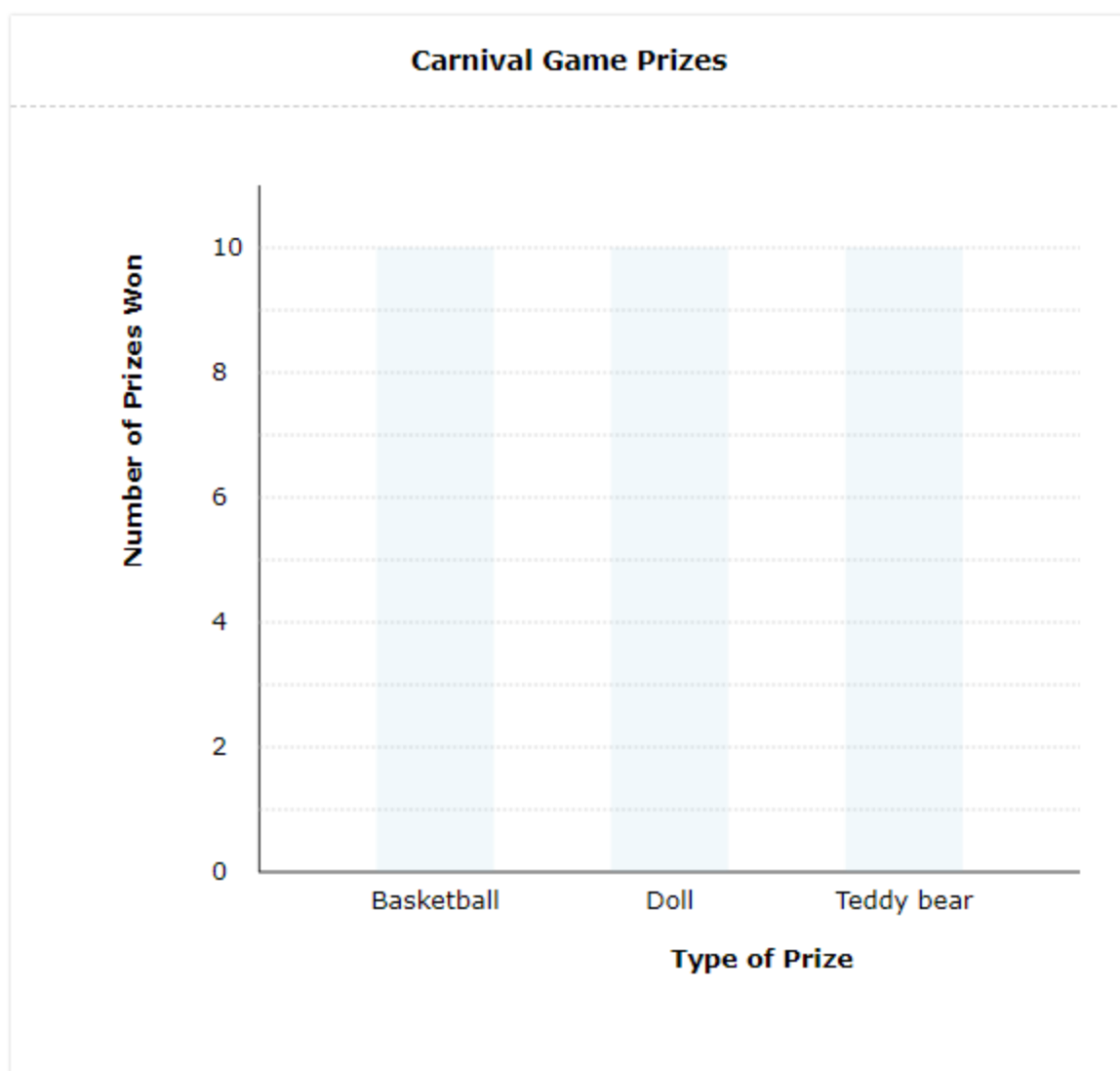Select the location on each bar to correctly represent the data.

Favorite Ice Cream Flavor

Number of Students

14

12

10

8

6

4

2

0

Chocolate   Vanilla   Strawberry

Flavor

4.
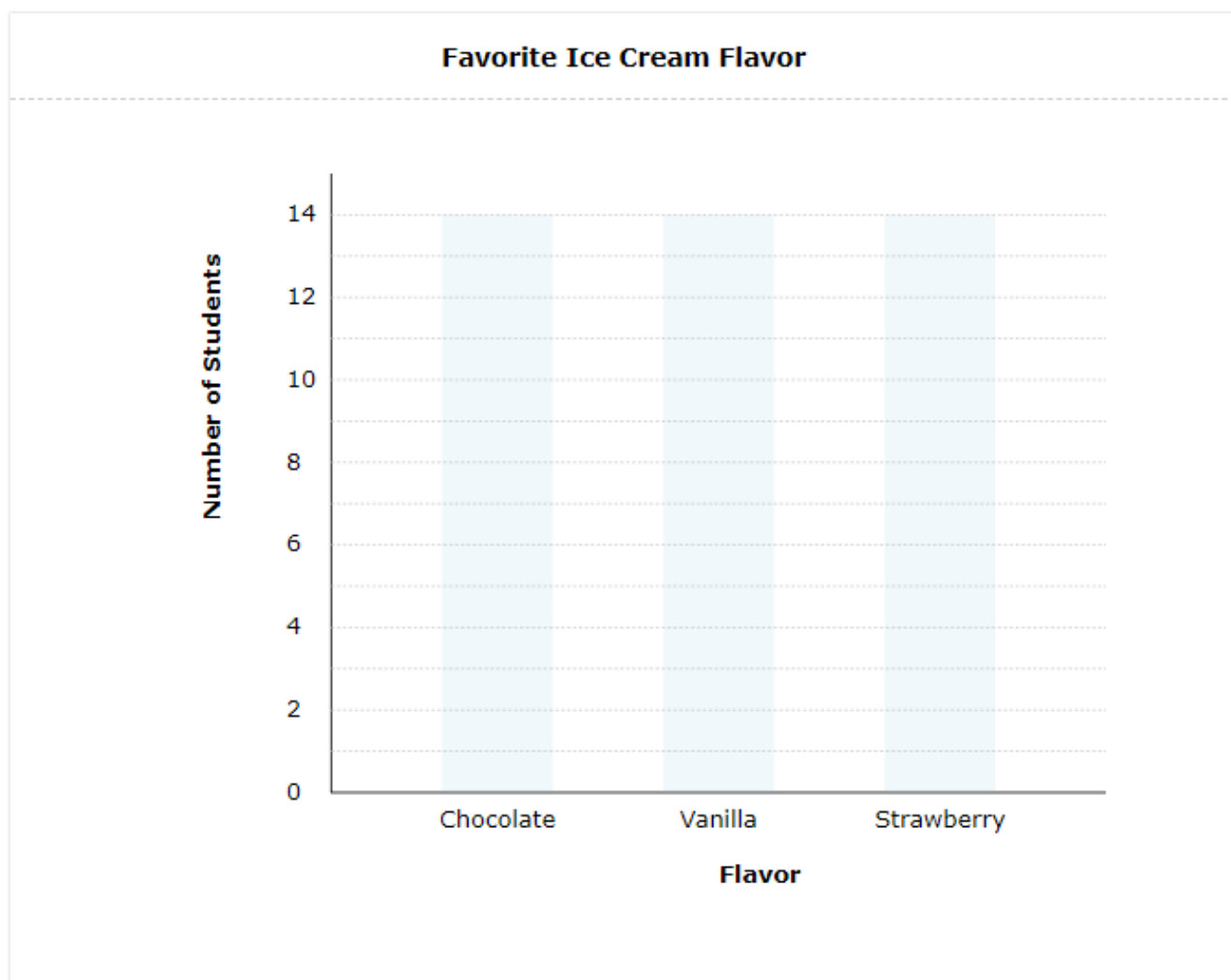
The table shows the number of each type of prize won in a carnival game.

Carnival Game Prizes

Type of Prize	Number of Prizes Won
Basketball	8
Doll	2
Teddy bear	5

Complete the bar graph to show the data in the table.

Select the location on each bar to correctly represent the data.

Carnival Game Prizes

(Bar graph with y-axis labeled "Number of Prizes Won" ranging from 0 to 10, and x-axis labeled "Type of Prize" with categories: Basketball, Doll, Teddy bear)

5.

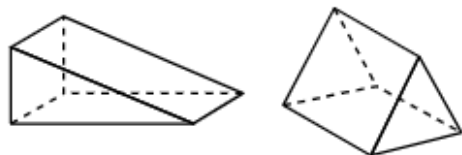Complete the statement so that it correctly compares two place values in the number shown.

73,333

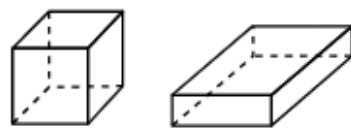Choose the correct answer from each drop-down menu to complete the statement.

The value of the digit 3 in the [⇕] place is 10 times the value of the digit 3 in the [⇕] place.

6.

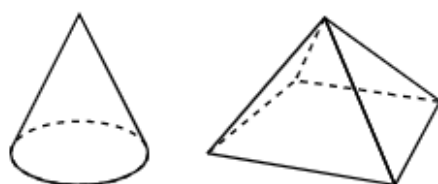Veronica sorted shapes into three groups based on a common characteristic.

Group A

Group B

Group C

Choose the correct answer from each drop-down menu to complete the statement.

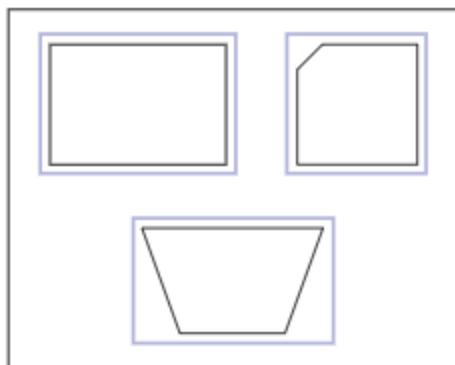All the figures in Group A are [⇕] because they have [⇕].

7.

Camille sorted shapes into two labeled groups. She sorted two shapes incorrectly.
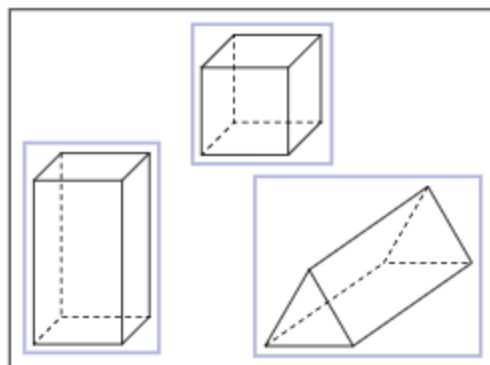
Which shapes did Camille sort incorrectly?

Select **TWO** correct answers.

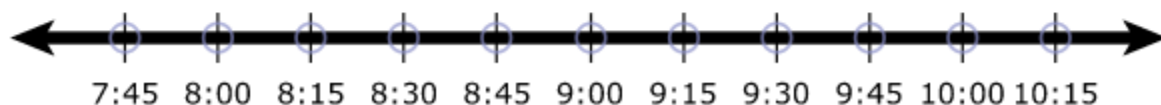Quadrilaterals   Rectangular Prisms

8.

Miguel decided to watch a show on television:

- It took him 15 minutes to choose a show to watch.

- After choosing a show, he watched the show for 1 hour.

If Miguel started choosing a show at 7:45, at what time did he stop watching the show?

Select **ONE** location on the number line to plot the point.

7:45 8:00 8:15 8:30 8:45 9:00 9:15 9:30 9:45 10:00 10:15

9.

Troy planted roses in $\frac{5}{6}$ of his garden. Complete the model so it is shaded to represent the fraction $\frac{5}{6}$.

Select the correct number of equal parts in one whole for the figure. Then select the number of parts that should be shaded.

Select the Create Model button when you have selected the number of total parts and number of shaded parts.

Create a model.

Select the total number of parts. [1 ▾]

Select the number of shaded parts. [1 ▾]

[Create Model]

10.

A cake was cut into equal pieces. After dinner, $\frac{4}{8}$ of the cake was left. Complete the model so that it is shaded to represent a fraction equivalent to $\frac{4}{8}$.

Select the correct number of equal parts in one whole for the figure. Then select the number of parts that should be shaded.

Select the Create Model button when you have selected the number of total parts and number of shaded parts.

Create a model.

Select the total number of parts. [1 ▾]

Select the number of shaded parts. [1 ▾]

[Create Model]

11.

The table shows the number of students in an art class who created each of four art projects.

Art Projects

Project	Number of Students
Birdhouse	5
Jewelry box	6
Puppet	2
Wind chimes	3

Complete the pictograph to show the data from the table.

Move the correct symbols into the boxes in the pictograph. Each symbol may be used more than once.

● ◀

Art Projects

Birdhouse	
Jewelry box	
Puppet	
Wind chimes	

Each ● means 2 students.

12.

A baker is making peach pies. He needs 4 peaches for each pie.

Complete the table to show the relationship between the number of pies the baker makes and the number of peaches he needs.

Move the correct answer to each box. Not all answers will be used.

28   10   3   32   9   2

Peaches Needed for Pies

Number of Pies	Number of Peaches
1	4
[ ]	12
6	24
8	[ ]
[ ]	36

13.

Mr. Cona is a third-grade teacher. Which factors would most likely affect the amount of money he is paid for his job?

Select **TWO** correct answers.

☐ The number of years he has been teaching
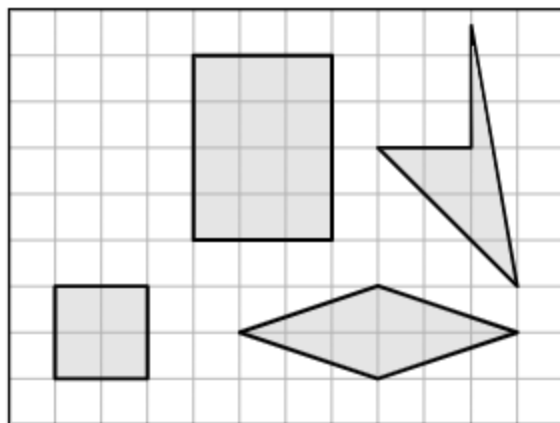
☐ The cost of his home

☐ The type of teaching degree he has

☐ The bank he uses

☐ The distance he lives from the school

14.

Nia drew this group of shapes on a grid.

What are two of the shapes included in Nia's group?

Select **TWO** correct answers.

☐ Pentagon

☐ Rectangle
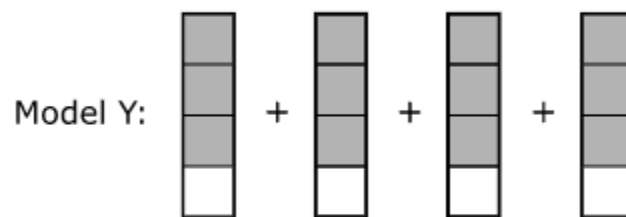
☐ Rhombus

☐ Trapezoid

☐ Triangle

2021 STAAR Grade 4 Math New Item Types

1.

The model is shaded to represent one whole.

Model Y is shaded to represent a number greater than 1.

Model Y: ☐ + ☐ + ☐ + ☐

Write an expression that represents Model Y.

Enter numbers in the boxes provided.

$$\frac{\square}{\square} + \frac{\square}{\square} + \frac{\square}{\square} + \frac{\square}{\square}$$

1	2	3
4	5	6
7	8	9
0	.	☐/☐

2.

On Monday, $\frac{5}{12}$ of the students in Jorge's class rode the bus to school and $\frac{4}{12}$ walked to school. What fraction of the students in Jorge's class either rode the bus or walked to school on Monday?

Enter your answer in the space provided.

1	2	3
4	5	6
7	8	9
0	.	$\frac{\square}{\square}$

3.

Ms. Wilmeth bought 4 bags of candy. Each bag contained 8 pieces of candy. She put an equal number of all the pieces into each of 9 gift boxes.

How many pieces of candy were left over?

Enter your answer in the box.

1	2	3
4	5	6
7	8	9
0	.	$\frac{\square}{\square}$

4.

The owners of a business rented 4,506.23 square feet of space in an office building. They plan to use 281.6 square feet of the space for the kitchen.

How many square feet of space is left?

Enter your answer in the box.

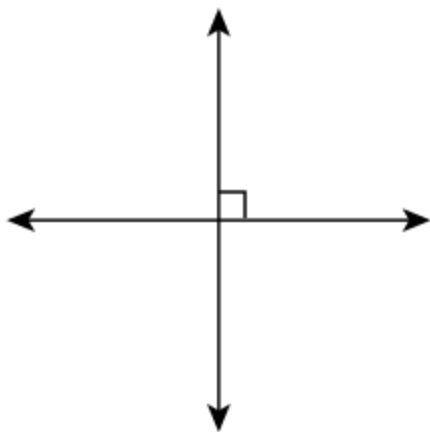| 1 | 2 | 3 |
4	5	6
7	8	9
0	.	□/□

5.

Two figures are shown.

| Figure 1 | Figure 2 |

Choose the correct answer from each drop-down menu to complete the statements.

Figure 1 shows [⇕] that are [⇕].

Figure 2 shows [⇕] that are [⇕].

6.

Greg sorted his collection of baseball cards:

- He will give $\frac{1}{5}$ of his collection to his brother.

- He will sell $\frac{4}{10}$ of his collection to a card shop.

How much of his collection of baseball cards will Greg have left?

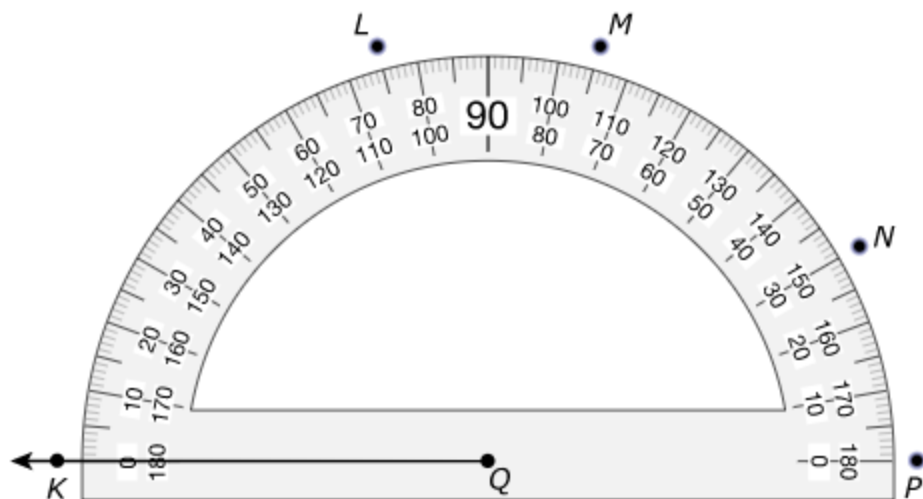Choose the correct answer from the drop-down menu to complete the statement.

Greg will have [⇕] of his collection left.

7.

An angle with a measure of 75° can be created by using the protractor. Ray *QK* is drawn on the protractor as shown.

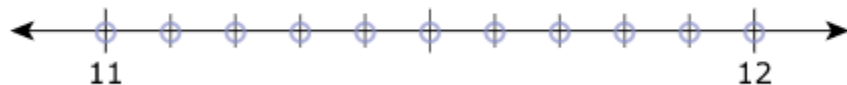Which point should be connected to point *Q* to create a ray that completes the 75° angle?

Select **ONE** correct answer.

8.

Which point on the number line represents the location of 11.6?

Select **ONE** location on the number line to plot the point.

9.

Complete the model to show a fraction equivalent to 0.3.

Select the correct number of equal parts in one whole for the figure. Then select the number of parts that should be shaded.

Select the Create Model button when you have selected the number of total parts and number of shaded parts.

Create a model.

Select the total number of parts. [1 ⌄]

Select the number of shaded parts. [1 ⌄]

[Create Model]

10.

In a bag of balloons, $\frac{2}{8}$ of the balloons are red and $\frac{5}{8}$ of the balloons are blue.

What fraction of the balloons in the bag are either red or blue?

Complete the model so that it is shaded to represent the fraction of the balloons that are either red or blue.

Select the parts you want to shade.

Red and Blue Balloons

11.

The list gives information about the favorite color of each of 22 students.

- 6 students chose red.

- 2 students chose yellow.

- 5 more students chose blue than yellow.

- 3 fewer students chose purple than red.

- The rest of the students chose green.

Use tally marks to create a frequency table that represents the number of students who chose each color.

Move the correct number of symbols to each box in the table. Each symbol may be used more than once.

𝐍𝐍 |

Favorite Color

Color	Number of Students
Red	
Yellow	
Blue	
Purple	
Green	

12.

The rule + 2 is used to represent the relationship between the input and output of a number pattern.

Complete the table to represent the relationship with the rule + 2.

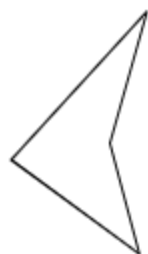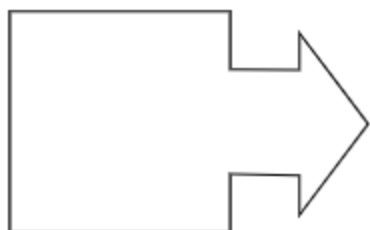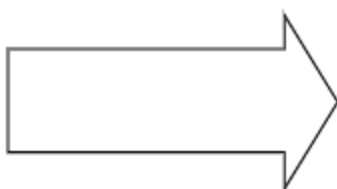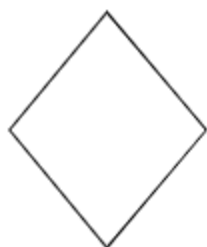Move the correct answer to each box in the table. Not all answers will be used.

2   3   6   7   12   15   18

Input	Output
1	
2	4
5	
10	
	20

13.

Which figures appear to have 2 or more lines of symmetry?

Select **TWO** correct answers.

☐

☐

☐

☐

☐
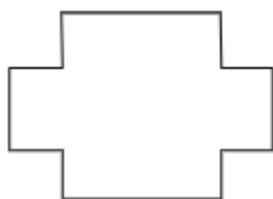
14.

Which comparisons are true?

Select **TWO** correct answers.

☐ $\frac{2}{4} > \frac{4}{8}$

☐ $\frac{1}{2} < \frac{3}{4}$

☐ $\frac{1}{3} > \frac{1}{4}$

☐ $\frac{3}{6} < \frac{3}{8}$

☐ $\frac{2}{8} > \frac{1}{4}$

2021 STAAR Grade 5 Math New Item Types

1.

Rosemary walks for exercise each week. The table shows the number of miles she walked each week for three weeks.

Miles Walked

Week	Number of Miles
1	8.6
2	8.65
3	8.07

Use the symbols >, <, or = to compare two of the numbers of miles walked.

Enter your answer in the space provided.

1	2	3	+	-	×	÷
4	5	6	<	=	>	
7	8	9	( )			
0	.	□/□				

2.

Mr. Yeager drives 28.6 miles to work every day. How is the number 28.6 written in expanded notation?

Enter your answer in the boxes provided.

$$\left(\boxed{} \times \boxed{}\right) + \left(\boxed{} \times \boxed{}\right) + \left(\boxed{} \times \boxed{}\right)$$

1	2	3	+	-	×	÷
4	5	6	<	=	>	
7	8	9	( )			
0	.	□/□				

3.

Dion ran 3.75 kilometers each day to prepare for a race.
What was the total number of kilometers that Dion ran in 28 days?

Enter your answer in the box.

1	2	3
4	5	6
7	8	9
0	.	$\frac{\square}{\square}$

4.

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 the total cost of the air filters.

The total amount in dollars and cents that Rebecca paid for these 8 air filters can be represented by this expression.

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

How much did Rebecca pay for the 8 air filters in dollars and cents?
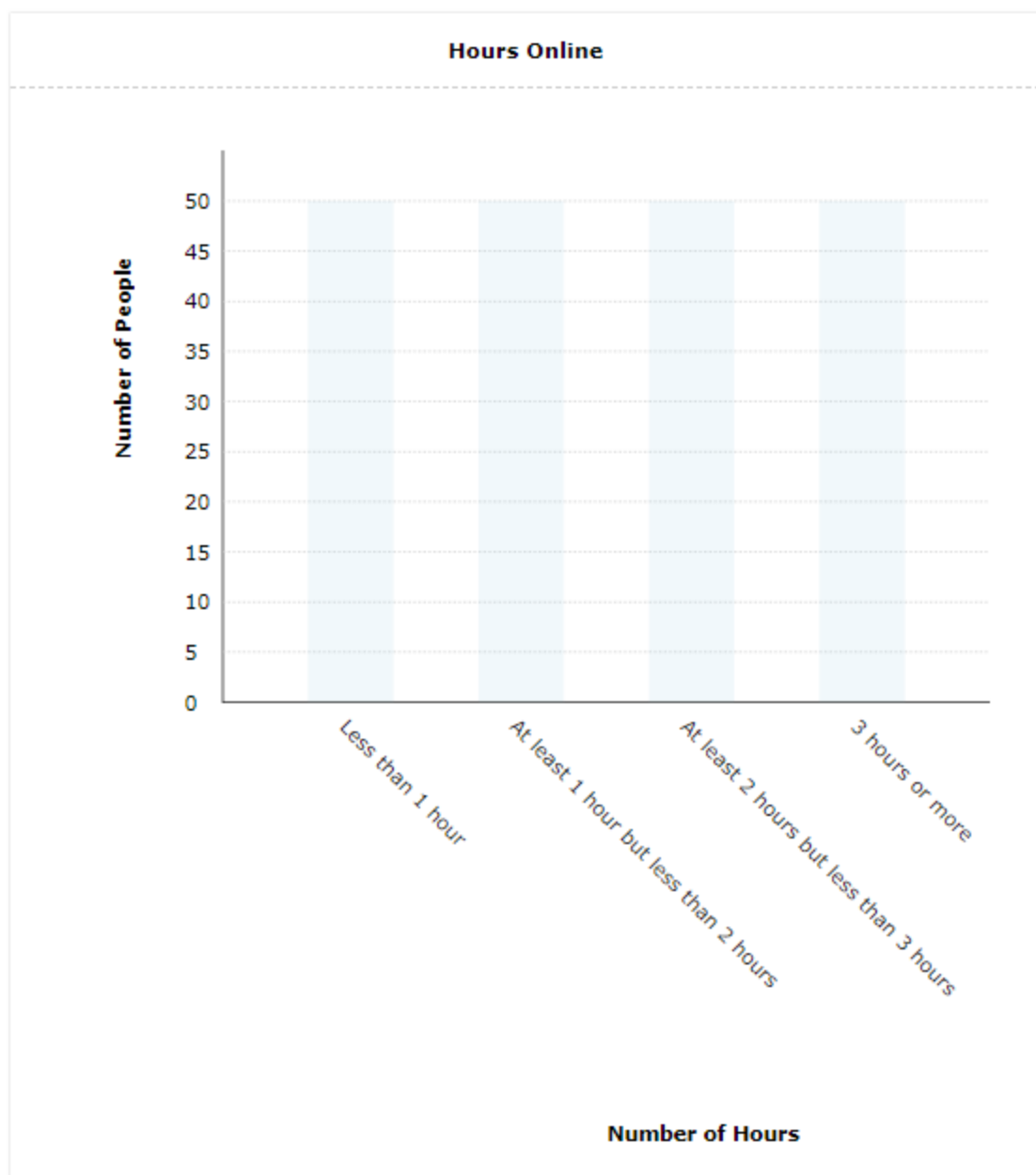
Enter your answer in the box.

$ [   ]

1	2	3
4	5	6
7	8	9
0	.	$\frac{\square}{\square}$

5.

A group of 100 people were asked how many hours they are online each day. The results are listed:

- 25 people online for less than 1 hour
- 10 people online for at least 1 hour but less than 2 hours
- 20 people online for at least 2 hours but less than 3 hours
- 45 people online for 3 hours or more

Complete the graph so that it correctly represents the data.

Select the location on each bar to correctly represent the data.

Hours Online

Number of People

50
45
40
35
30
25
20
15
10
5
0

Less than 1 hour

At least 1 hour but less than 2 hours

At least 2 hours but less than 3 hours

3 hours or more

Number of Hours

6.

Jesse recorded the amount of rain at his house each week for three weeks:

- There was 0.25 inch of rain during Week 1.

- There was 0.15 inch of rain during Week 2.

- There was 0.1 inch of rain during Week 3.

Complete the bar graph to represent the data.

Select the location on each bar to correctly represent the data.

Rainfall Recorded

Rainfall (in.)

0.3
0.25
0.2
0.15
0.1
0.05
0

Week 1   Week 2   Week 3

Week
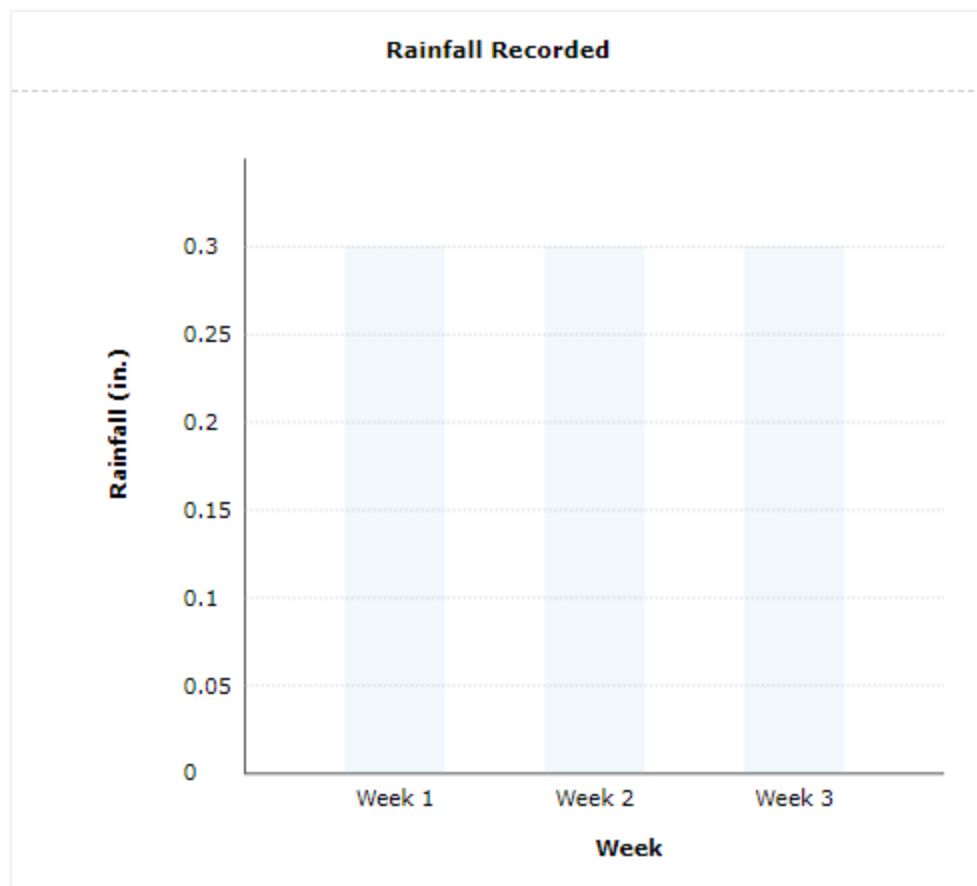
7.

A store sells packages of cupcakes for $3 each. The relationship between the number of packages, x, and the total cost in dollars, y, can be represented by the equation $y = 3x$.

Plot four points that satisfy this rule.
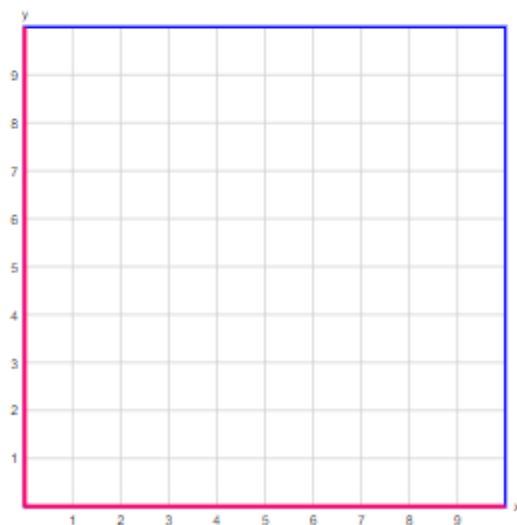
Plot each point on the coordinate grid.

Cost of Cupcakes

Number of Packages
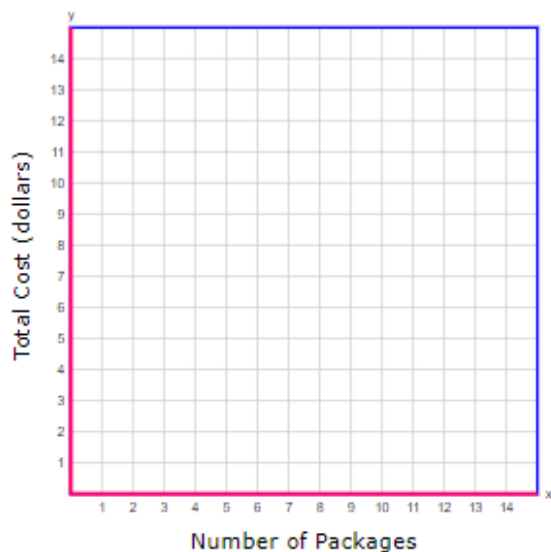
8.

A table of ordered pairs is shown.

x	1	2	5	6
y	$1\frac{1}{2}$	$2\frac{1}{2}$	$5\frac{1}{2}$	$6\frac{1}{2}$

Select four points on the coordinate grid that represent the ordered pairs in the table.

Plot each point on the coordinate grid.

9.

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

x	y
12	18
24	30
48	54
60	66

What kind of pattern is shown in the table?

Choose the correct answer from each drop-down menu to complete the statement.

The pattern is [⇕] because the y-values are [⇕] the corresponding x-values.

10.

A student wants to plot a point at $(4, 2)$ on a coordinate grid. What process should the student use when starting from the origin of the coordinate grid?

Choose the correct answer from each drop-down menu to complete the statements.

On the x-axis, the student should move [⇕] units [⇕].

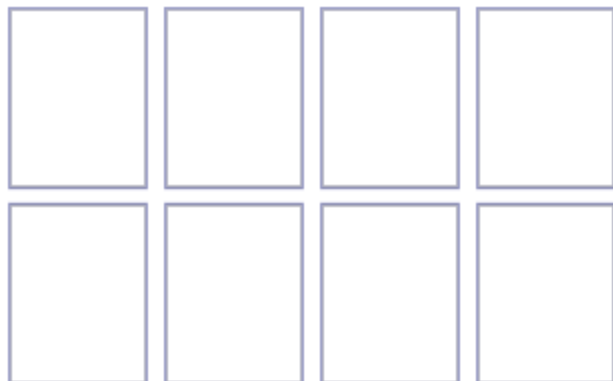On the y-axis, the student should move [⇕] units [⇕].

11.

The rectangle shown represents 1 whole.

In the model below, select the number of rectangles that represents the product of $\frac{3}{4}$ and 8.
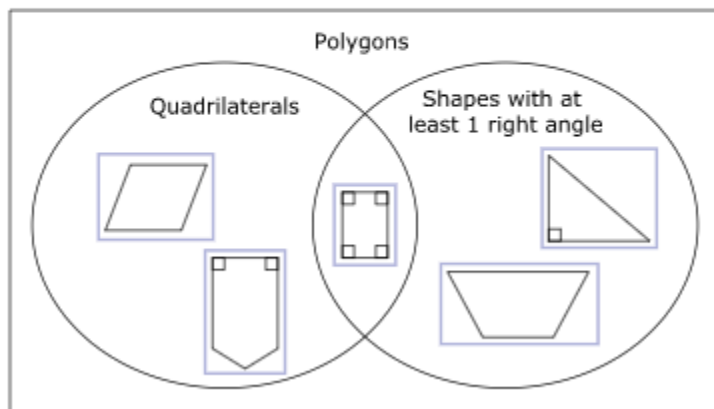
Select the rectangles you want to shade.

12.

The diagram shows how Stella organized some shapes in a Venn diagram.

Which shapes are **NOT** placed correctly?

Select **TWO** correct answers.

Polygons

Quadrilaterals

Shapes with at least 1 right angle

13.

Four students are traveling to a math contest. The table shows the weights of the four students' suitcases.

Weights of Suitcases

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

What is the order of the weights of the suitcases in pounds from greatest to least?

Move the correct answer to each box.

21.605	24.8	21.48	24.75

Greatest ⟶ Least

14.

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

Create a table that represents the equation $y = 12x$.

Move the correct answer to each box. Not all answers will be used.

3	4	6	12	24	36	48

Number of Boxes, x	Number of Dog Beds, y
1	
2	
3	
4	

15.	Which of these are examples of a property tax?
	Select **TWO** correct answers.
	☐ Tax paid on the value of a piece of furniture a person owns
	☐ Tax paid on the value of a farm a person owns
	☐ Tax paid on the value of a car a person owns
	☐ Tax paid on the value of a necklace a person owns
	☐ Tax paid on the value of a home a person owns
16.	The word form of a number is four hundred sixty-two and seven thousandths. Which of these also represent this number?
	Select **TWO** correct answers.
	☐ 462.070
	☐ 462.007
	☐ $(4 \times 100) + (6 \times 10) + (2 \times 1) + (7 \times 0.001)$
	☐ $(4 \times 100) + (6 \times 10) + (2 \times 1) + (7 \times 0.01)$
	☐ $(4 \times 100) + (6 \times 10) + (2 \times 1) + (7 \times 0.1)$

1.

Shaquille baked 4 times as many chocolate chip cookies as vanilla cupcakes. He baked 48 chocolate chip cookies.
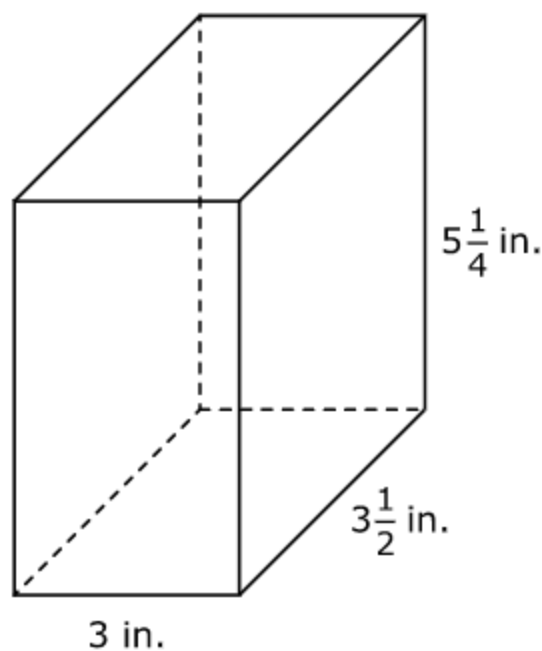
Write an equation that can be used to find the number of vanilla cupcakes, x, that Shaquille baked.

Enter your answer in the space provided.

1	2	3	x			
4	5	6	$+$	$-$	$\bullet$	$\div$
7	8	9	$<$	$\leq$	$=$	$\geq$	$>$
	0		$\square^{\square}$	$()$		
$.$	$-$	$\frac{\square}{\square}$				

2.

A right rectangular prism has the dimensions shown.

$5\frac{1}{4}$ in.

$3\frac{1}{2}$ in.

3 in.

What is the volume of the prism in cubic inches?

Enter your answer in the space provided.

1	2	3	+	-	●	÷
4	5	6	<	≤	=	≥	>
7	8	9	□▢	( )		
	0					
.	-	▢/▢				

3.

On Wednesday, 72% of the customers who bought gas at a gas station made additional purchases. There were 250 customers who bought gas.

How many of these 250 customers made additional purchases?

Enter your answer in the box.

1	2	3
4	5	6
7	8	9
	0	
.	-	□/□

4.

The list shows the numbers of hours 5 employees worked at a store.

14   23   26   40   26

What is the mean of the numbers of hours worked by the employees?

Enter your answer in the box.

| 1 | 2 | 3 |
4	5	6
7	8	9
	0	
.	-	□/□

5.

The table shows the number of photocopies made during one day at each of the 25 schools in a school district.

Photocopies

805	805	872	910	919
923	950	989	1,004	1,010
1,020	1,051	1,056	1,085	1,094
1,098	1,108	1,128	1,133	1,150
1,150	1,187	1,209	1,220	1,298

Complete the histogram to show the data.

Select the location on each bar to correctly represent the data.

Photocopies

Number of Schools

800–899   900–999   1,000–1,099   1,100–1,199   1,200–1,299

Number of Photocopies
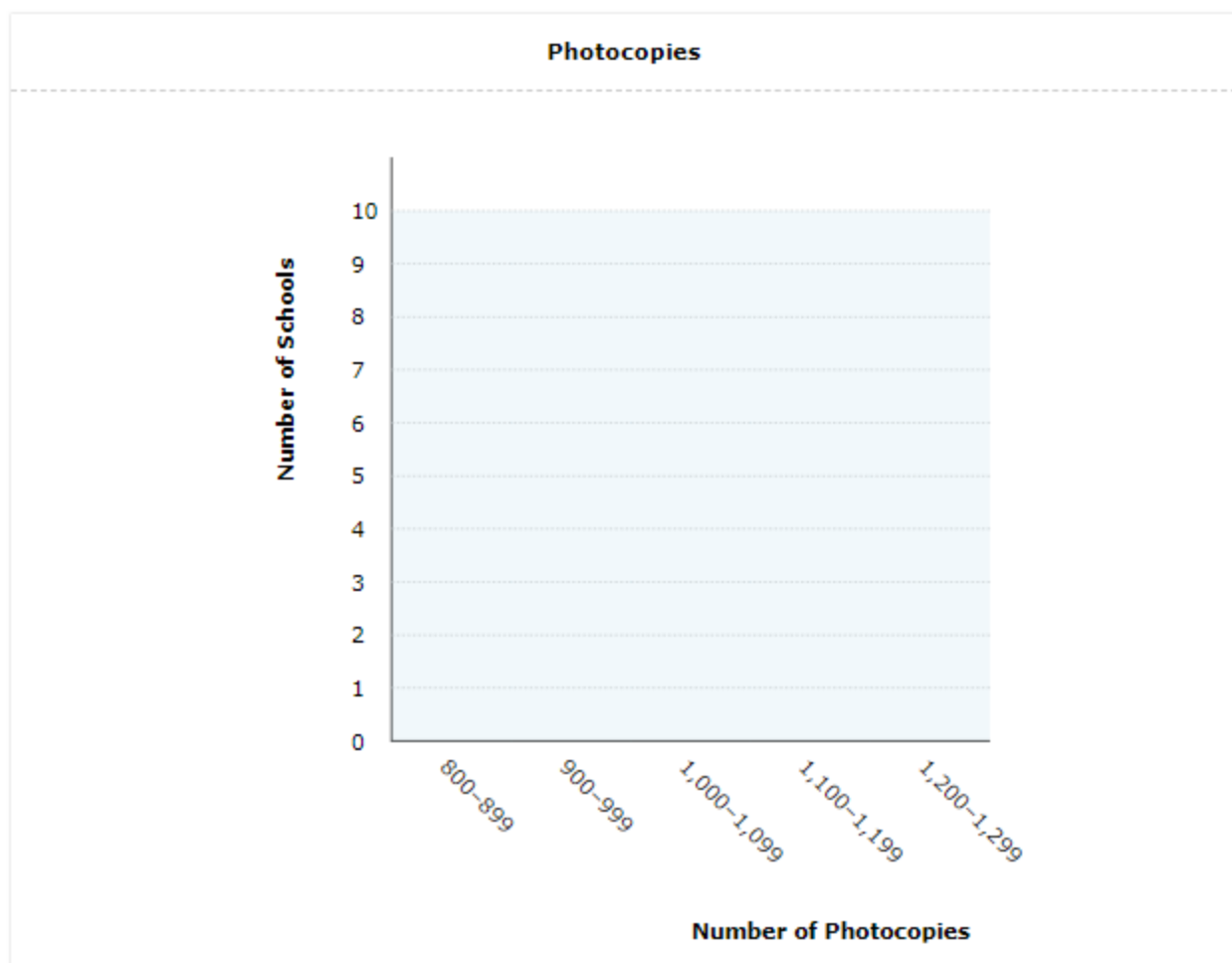
6.

The table represents data about the ages of the people in a group of hikers.

Ages of Hikers

Age	Number of People
10–19	18
20–29	16
30–39	9

Complete the histogram so that it correctly represents the data in the table.

Select the location on each bar to correctly represent the data.

Ages of Hikers
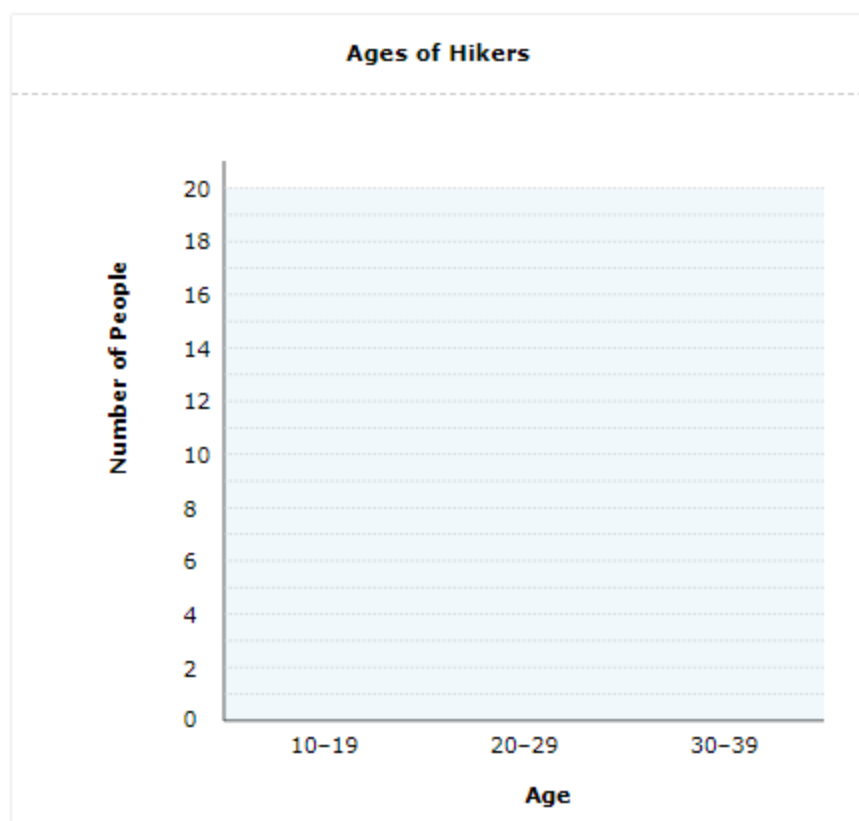
7.

The graph shows point L. What is the location of a point 5 units down and 2 units to the left of point L?

Plot the point on the coordinate grid.
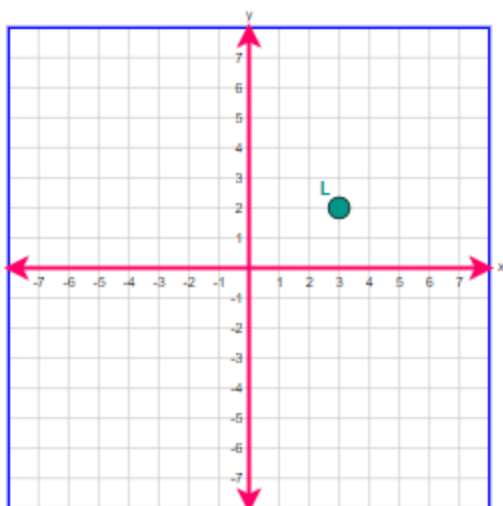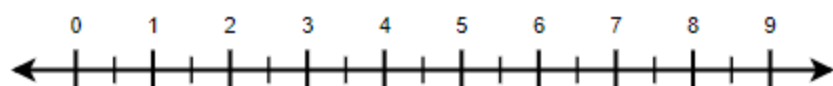

8.

What is the location of the point $(-2, \ 0)$?

Plot the point on the coordinate grid.
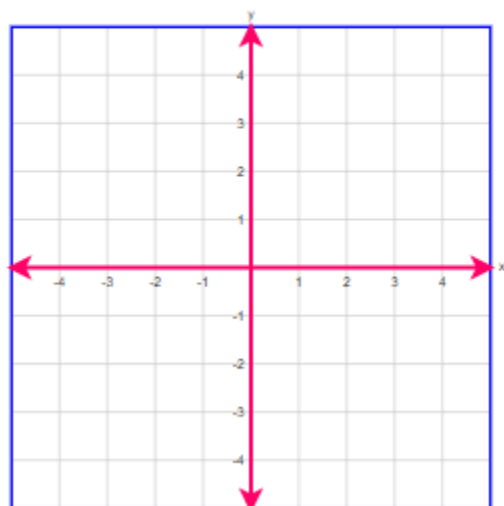
9.

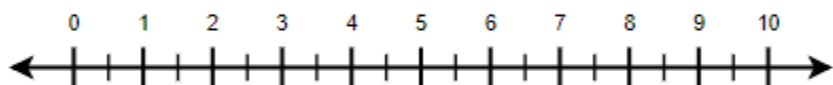Use the number line to represent the solution to $6x < 42$.

Select a ray. Move the point on the ray to the correct place on the number line.

```
    0   1   2   3   4   5   6   7   8   9
<---+---+---+---+---+---+---+---+---+---+--->
```

←●	←○
○→	●→

10.

Use the number line to represent the solution to $5x \geq 15$.

Select a ray. Move the point on the ray to the correct place on the number line.

```
    0   1   2   3   4   5   6   7   8   9   10
<---+---+---+---+---+---+---+---+---+---+---+--->
```

←●	←○
○→	●→

11.

The dot plot shows the ages of employees at a summer camp.

Ages of Employees

```
            ●
            ●
  ●         ●
  ●     ●       ●
  ●     ●   ●   ●   ●
<--+---+---+---+---+---+---+-->
  16  17  18  19  20  21
         Age (years)
```

Each ● means 1 employee.

Choose the correct answer from each drop-down menu to complete the statements.

The range is [⌄] years.

The median is [⌄] years.

12.

Describe the relationship between x and y in the equation $y = x + 6$.
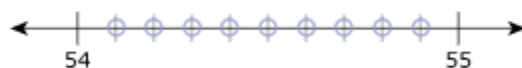
Choose the correct answer from each drop-down menu to complete the statement.

The relationship is [⌄] because the value of y is [⌄] the value of x.

13.

Which point on the number line represents $54\frac{4}{5}$?

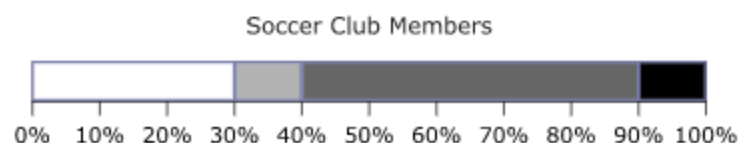Select **ONE** location on the number line to plot the point.

14.

The table shows the number of students from each grade in a soccer club.

Soccer Club Members

Grade	Number of Members
5th grade	15
6th grade	20
7th grade	10
8th grade	5

Which bars in the percentage bar graph correctly represent the data?

Select **TWO** correct answers.

Soccer Club Members

KEY
☐ 5th grade
▨ 6th grade
▓ 7th grade
■ 8th grade

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

15.

Two models are shown. Which expression does each model represent?

Move the correct answer to each box. Not all answers will be used.

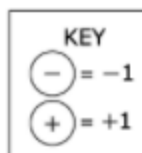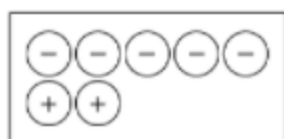| 3 − (−5)	(−5) + 2	2 − (−5)	3 + (−5)	5 − 2

Model 1

Expression: [_____]

Model 2

KEY
(−) = −1
(+) = +1

Expression: [_____]

16.

At the beginning of the day on February 17, Graciela had $77.25 in her checking account. Graciela recorded her transactions from that day in her check register:

- Deposited $35.00 from babysitting

- Paid $28.50 for yearbook

Complete Graciela's check register to show the balance after each transaction.

Move the correct answer to each box. Not all answers will be used.

13.75	42.25	70.75	83.75	112.25	140.75

Checking Account

Date	Description	Deposits (dollars)	Withdrawals (dollars)	Balance (dollars)
				77.25
2/17	Babysitting	35.00		[_____]
2/17	Yearbook		28.50	[_____]

17.

Anna is looking at her credit report. Identify the information Anna might see on her credit report.

Select the correct answer in each row.

Information	On Credit Report	Not on Credit Report
The balance owed on each of her credit cards	☐	☐
The date on which she paid off her car loan	☐	☐
The balance in her checking account	☐	☐

18.

Determine whether each factorization is or is not a prime factorization of 60.

Select the correct answer in each row.

Factorization	Prime	Not Prime
$4 \cdot 15$	☐	☐
$2^2 \cdot 3 \cdot 5$	☐	☐
$3 \cdot 20$	☐	☐

19.

Each child in a group was asked to choose a favorite type of cereal. The table shows the number of children who chose each type of cereal.

Favorite Cereal

Type of Cereal	Number of Children
Oatmeal	15
Grits	10
Wheat porridge	2
Cold cereal	20
Other	3

Which statements are supported by the data in the table?

Select **TWO** correct answers.

☐ Less than 2% of the children chose wheat porridge as their favorite type of cereal.

☐ Less than 5% of the children chose "other" as their favorite type of cereal.

☐ Cold cereal is associated with the mode for the favorite type of cereal.

☐ Oatmeal is the favorite type of cereal for 15% of the children.

☐ Grits is the favorite type of cereal for 20% of the children.

20.

Which expressions are equivalent to $4(3 + 5) - 3 \times 9^2$?

Select **TWO** correct answers.

☐ $12 + 20 - 243$

☐ $14 \cdot 81$

☐ $17 - (27)^2$

☐ $4(8) - 3 \times 81$

☐ $12 + 20 - 54$

2021 STAAR Grade 7 Math New Item Types

1.

A baker has a bag with 20 cups of flour. The baker plans to use the flour to make 4 loaves of bread. Each loaf of bread uses $3\frac{1}{3}$ cups of flour.

How many cups of flour will remain in the bag when the baker has finished making the bread?

Enter your answer in the space provided.

1	2	3	x	y		
4	5	6	$+$	-	$\bullet$	$\div$
7	8	9	$<$	$\leq$	$=$	$\geq$	$>$
	0		$\square^{\square}$	$()$	π	
.	-	$\frac{\square}{\square}$				

2.

The measures of the angles of triangle *PQR* can be represented in terms of *x*:

- The measure of angle *P* is $(2x)°$.

- The measure of angle *Q* is $(x + 17)°$.

- The measure of angle *R* is $(x - 21)°$.

Create an equation that can be used to find the measure of each angle.

Enter your answer in the space provided.

1	2	3	x			
4	5	6	$+$	$-$	$\bullet$	$\div$
7	8	9	$<$	$\leq$	$=$	$\geq$	$>$
	0		$\square^{\square}$	$()$	π	
.	-	$\frac{\square}{\square}$				

3.

What is the solution to the equation $-6x - 11 = 19$?

Enter your answer in the box.

1	2	3
4	5	6
7	8	9
	0	
.	-	$\frac{\square}{\square}$

4.

The figure shown is composed of two congruent triangles and a square.
Measurements are given in inches.

6 in.

5 in.   5 in.

4 in.   4 in.

5 in.   5 in.
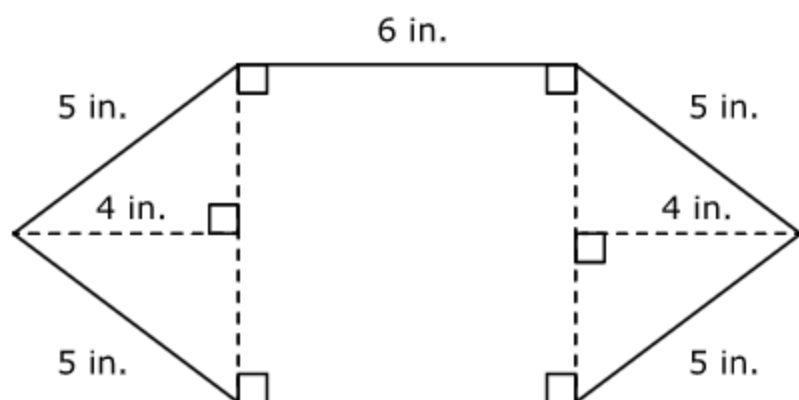
What is the total area of the figure in square inches?

Enter your answer in the box.

1	2	3
4	5	6
7	8	9
	0	
.	-	□/□

5.

A carpenter charges $25 to come to a customer's home. Then she charges $35 per hour for the time she spends working.

Graph a line that best represents the relationship between x, the number of hours the carpenter works, and y, the amount she charges in dollars.

Select two points on the coordinate grid. A line will connect the points.

Carpenter Charges
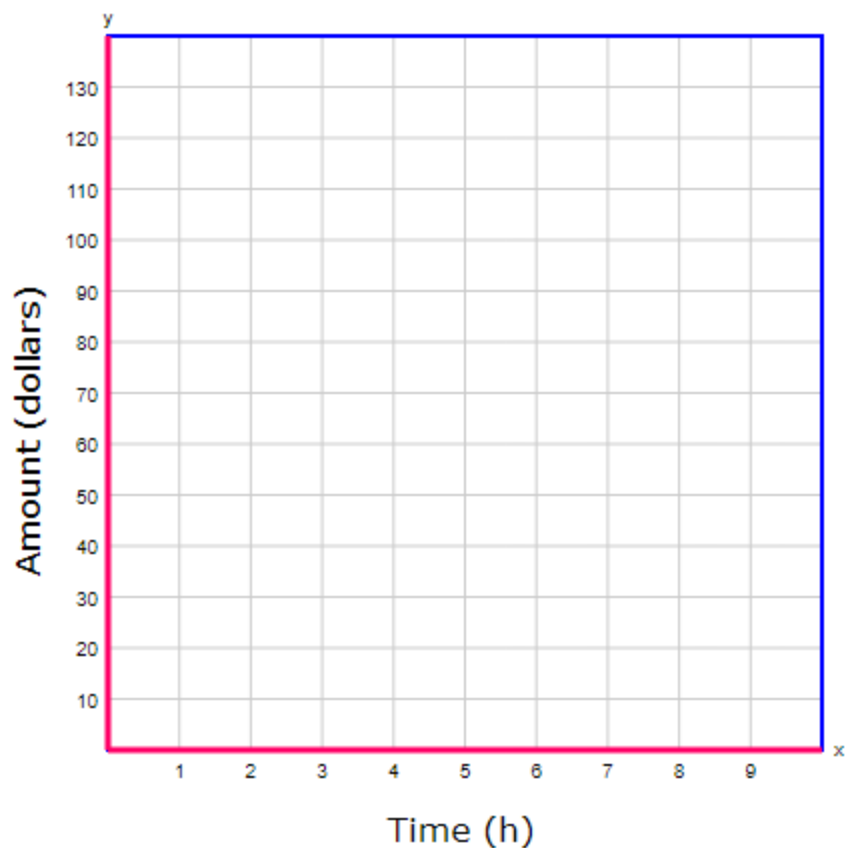
6.

Hudson traveled 7.5 miles in his kayak in 3 hours.

Graph the line that best represents the relationship between the time in hours, x, and the distance in miles, y, Hudson traveled if he traveled at a constant speed.

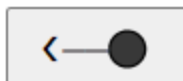Select two points on the coordinate grid. A line will connect the points.
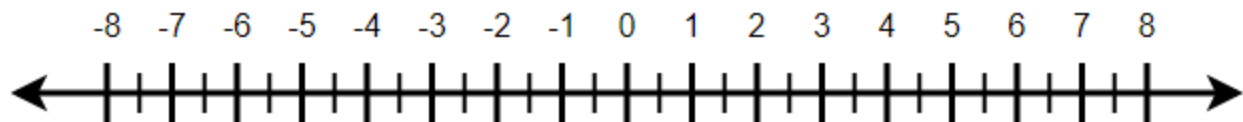
Kayak Travel

Distance (mi)

Time (h)
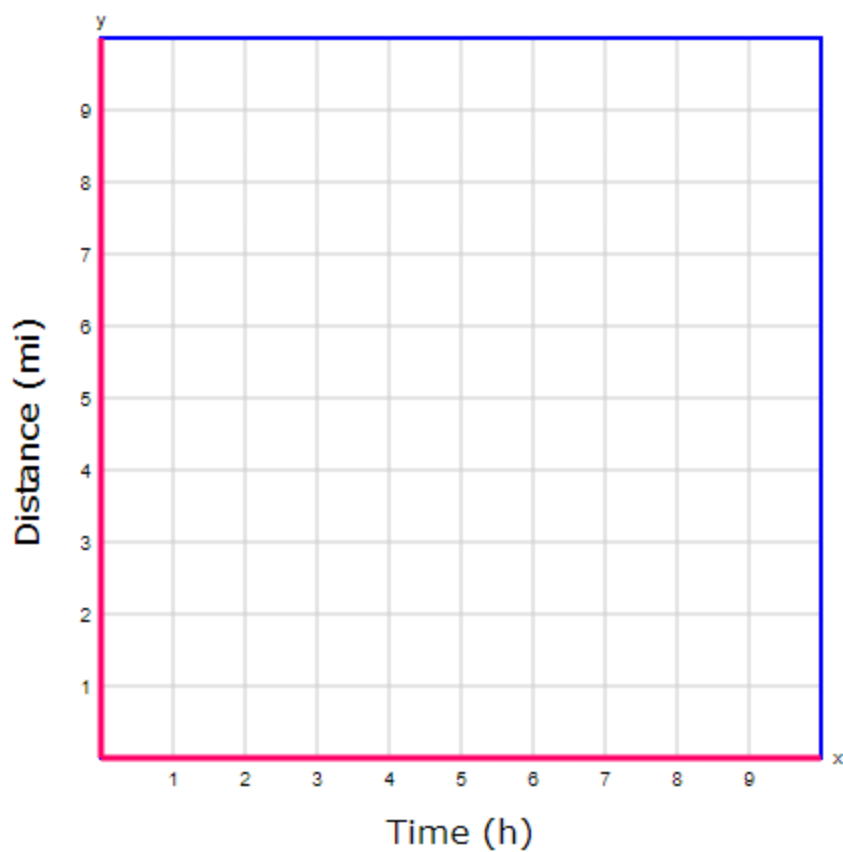
7.

Create a number line that best represents the solution to the inequality shown.

$$2 + \frac{3}{10}x \geq \frac{13}{20}$$

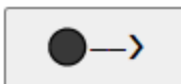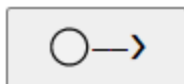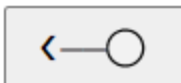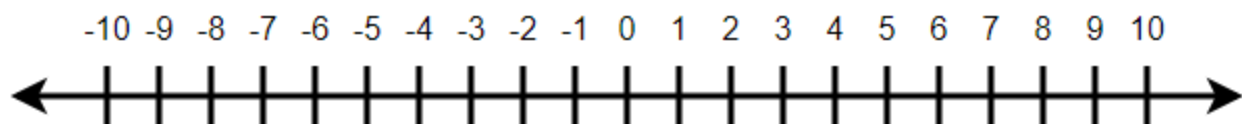Select a ray. Move the point on the ray to the correct place on the number line.

```
    -8  -7  -6  -5  -4  -3  -2  -1   0   1   2   3   4   5   6   7   8
←——┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼┼——→
```
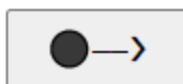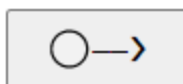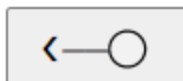
8.

Create a number line that best represents the solution to the inequality shown.

$$50x - 130 - 100x > 170$$

Select a ray. Move the point on the ray to the correct place on the number line.

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

9.

Ian has $6,000.00 to invest for 2 years. The table shows information about two investments Ian can make.

Investments

Investment	Rate	Type of Interest
X	4.5%	Simple
Y	4%	Compound

Ian makes no additional deposits or withdrawals. Which investment earns the greater amount of interest over a period of 2 years?

Choose the correct answer from each drop-down menu to complete the statement.

The investment with the greater amount of interest is

[⇕], which earns [⇕] more.

10.

The radius of a circle is about 0.84 inch, and the circumference of the circle is 5.28 inches. Describe how to use this information to best represent the value of π.
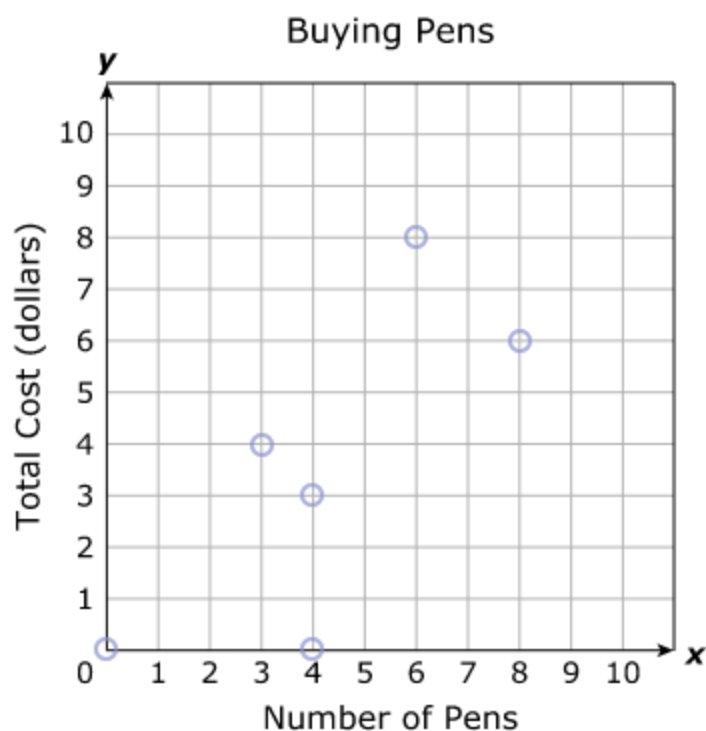
Choose the correct answer from each drop-down menu to complete the statement.

The value of π is best represented by [⇕]

[⇕].

11.

James buys 4 pens for $3. Which three points lie on the line that best represents the total cost, y, of x pens?

Select **THREE** correct answers.

Buying Pens

12.

The table shows Mr. Archer's net worth statement. Which items are liabilities?

Select **THREE** correct answers.

Net Worth Statement

Item	Value (dollars)
Checking account	590
Auto loan	3,300
Credit card debt	950
Savings account	1,590
Home mortgage	86,500

13.

The table shows a linear relationship between x and y.

x	y
3	7
5	11
10	21

Create an equation that describes the relationship shown in the table.

Move the correct answer to each box. Not all answers will be used.

| -2 | -1 | 1 | 2 |

$y = \boxed{}x + \boxed{}$

14.

Kaden is ordering an ice cream sundae with one topping. He can choose hot fudge, strawberry sauce, or caramel sauce for his topping and can choose chocolate or vanilla ice cream.

Complete the table to show all possible one-topping sundaes he can order.

Move the correct answer to each box. Not all answers will be used.

Hot fudge   Strawberry sauce   Caramel sauce   Chocolate

Vanilla

One-Topping Sundaes

Sundae	Topping	Ice Cream
1	Hot fudge	Chocolate
2	Hot fudge	[ ]
3	Strawberry sauce	Chocolate
4	[ ]	Vanilla
5	Caramel sauce	[ ]
6	Caramel sauce	Vanilla

15.

A teacher recorded the number of servings of vegetables her students ate each day. The dot plots show the results from Class 1 and Class 2.

Class 1

Number of Servings

Class 2

Number of Servings
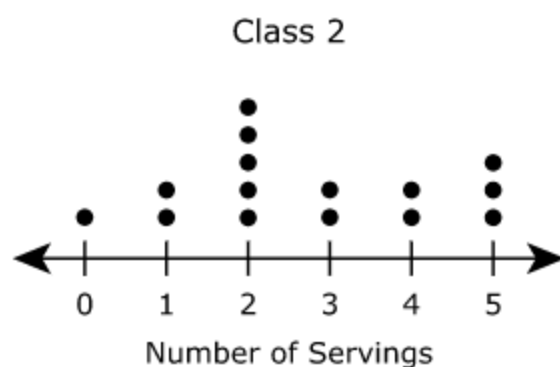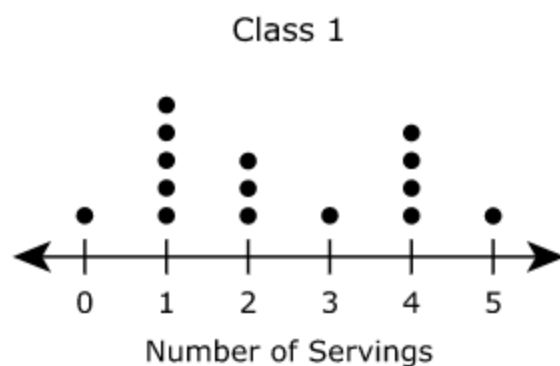
Each ● means 1 student.

Indicate whether each measure in the table is equal or not equal for the two classes.

Select the correct answer in each row.

Measure	Equal	Not Equal
Median	☐	☐
Mode	☐	☐

16.

Tamara is purchasing two shirts. For each shirt, she can choose one of three discounts:

- Discount 1: coupon for 20% off the price of any item

- Discount 2: $5 rebate on any item

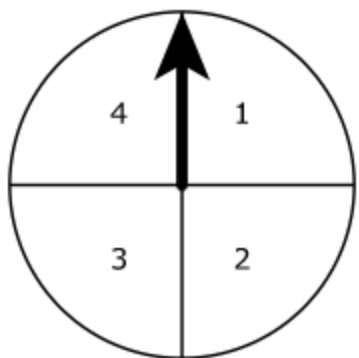- Discount 3: $\frac{1}{4}$ off the price of any item over $20

For each shirt listed in the table, indicate which discount offers the lowest discounted price.

Select the correct answer in each row.

Original Price of Shirt (dollars)	Discount 1	Discount 2	Discount 3
16	☐	☐	☐
28	☐	☐	☐

17.

The spinner shown has equal-sized sections labeled 1 through 4. It will be spun 20 times.

Which statements are reasonable predictions?

Select **TWO** correct answers.

☐ A 3 is likely to be spun 5 times.

☐ An even number is more likely to be spun than an odd number.

☐ A number less than 3 is likely to be spun 15 times.

☐ A number greater than 2 is likely to be spun 10 times.

☐ A 4 is more likely to be spun than a 1.

18.

Which inequalities are true when $x = -8$?

Select **TWO** correct answers.

- [ ] $\frac{1}{2}x + 12 \leq -4$

- [ ] $-2x + 9 \geq 25$

- [ ] $3x + 8 > -16$

- [ ] $-\frac{1}{8}x - 2 > -3$

- [ ] $-x + 9 < 12$

1.

Malika is making lemonade to sell at a school fundraiser:

- She purchased a new lemon squeezer for $9.00.

- The cost of the ingredients for each serving of lemonade is $1.50.

- She will be selling each serving of lemonade for $2.25.

Write an inequality that represents the minimum number of servings of lemonade, x, Malika must sell for the money from her sales to exceed the total cost of making the lemonade.

Enter your answer in the boxes provided.

$$\boxed{}\ x > \boxed{}\ x + \boxed{}$$

| ← | → | ↶ | ↷ | ⊠ |

1	2	3	x	y		
4	5	6	$+$	$-$	$\bullet$	$\div$
7	8	9	$<$	$\leq$	$=$	$\geq$	$>$
	0		$\square^{\square}$	$()$	$\sqrt{\square}$	π
.	-	$\frac{\square}{\square}$				

2.

Keisha sells hats for $10.50 each and scarves for $12.75 each.

Write an equation that represents the total cost, C, of h hats and 6 scarves.

Enter your answer in the space provided.

1	2	3	C	h		
4	5	6	+	-	$\bullet$	$\div$
7	8	9	<	$\leq$	=	$\geq$	>
	0		$\square^{\square}$	( )	$\sqrt{\square}$	π	
.	-	$\frac{\square}{\square}$				

3.

Mr. Jenkins deposited $1,250 into an account that earns 4.25% simple interest annually. He made no additional deposits or withdrawals.

What will be the balance in Mr. Jenkins' account in dollars and cents at the end of 4 years?

Enter your answer in the box.

1	2	3
4	5	6
7	8	9
	0	
.	-	$\frac{\square}{\square}$

4.

The length of a rectangular frame is 15 inches, and the width of the frame is 8 inches. What is the length of a diagonal of this frame in inches?

Enter your answer in the box.

1	2	3
4	5	6
7	8	9
	0	
.	-	$\frac{\square}{\square}$

5.

Ricardo can complete 4 laps around a track in 10 minutes. Create a graph that has a slope that represents the number of laps Ricardo can run per minute.

Select two points on the coordinate grid. A line will connect the points.

Running Rate

Number of Laps

Time (minutes)
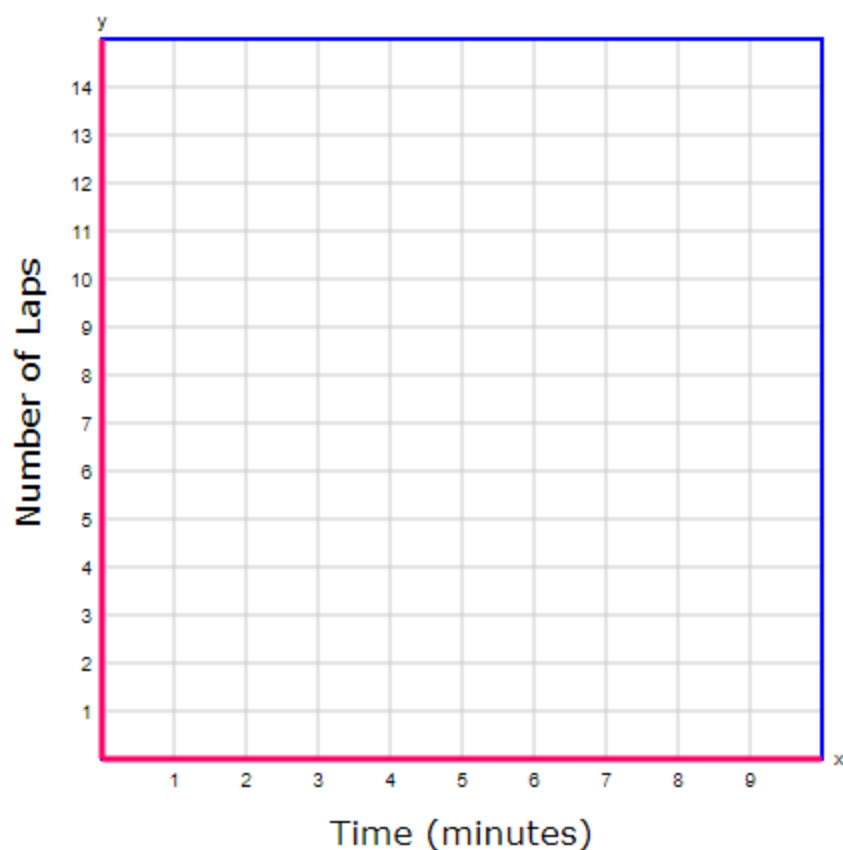
6.

Graph a relationship in which the value of *y* is 5 less than half the value of *x*.

Select two points on the coordinate grid. A line will connect the points.
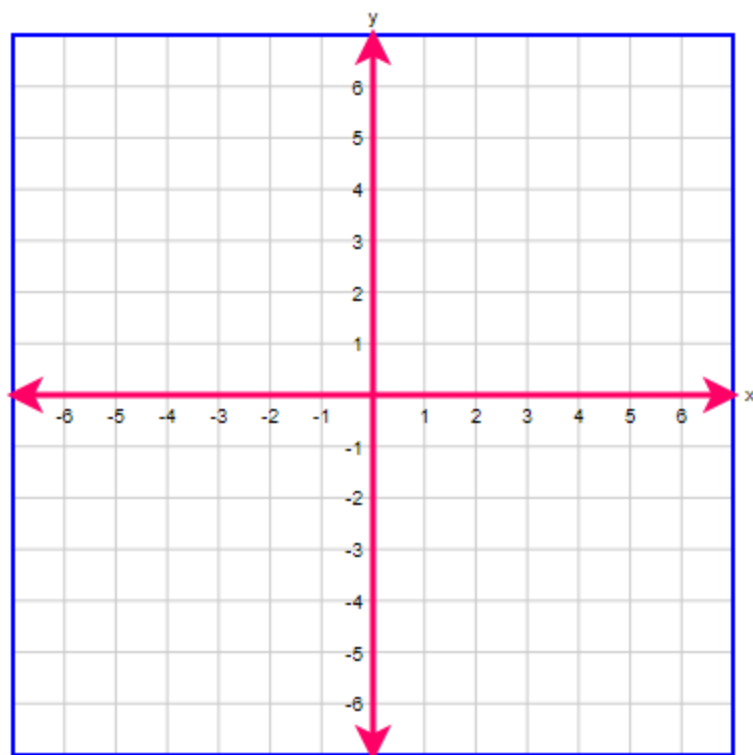
7.

A lifeguard recorded the daily average temperature in degrees Fahrenheit and the number of swimmers at the pool each day for 29 days. The scatterplot displays the data.

Pool Data
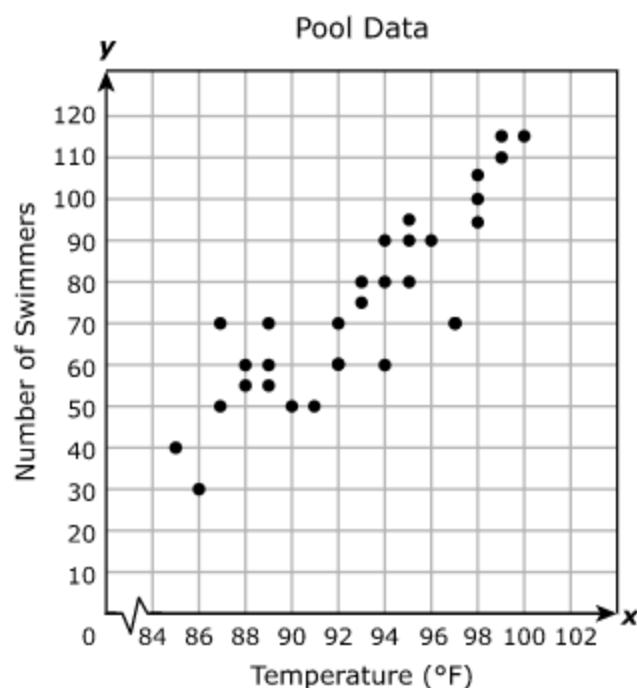
Complete the statements to best describe the relationship between the daily average temperature and the number of swimmers at the pool.

Choose the correct answer from each drop-down menu to complete the statements.

As the *x*-values increase, the *y*-values [⬍].

This represents a [⬍] [⬍] association between the daily average temperature and the number of swimmers at the pool.

8.

On a coordinate grid, triangle *PQR* is transformed by the rule $(x, y) \rightarrow \left(\frac{3}{5}x, \frac{3}{5}y\right)$ to create triangle *P'Q'R'*. Create true statements about the relationship between triangle *PQR* and triangle *P'Q'R'*.

Choose the correct answer from each drop-down menu to complete the statements.

The corresponding side lengths of the triangles are [⬍].

The corresponding angles of the triangles are [⬍].

9.

The ordered pair (2, 3) represents a point on the graph of a proportional relationship.

Which two ordered pairs could represent other points on the graph of the proportional relationship?

Select **TWO** correct answers.

Proportional Relationship
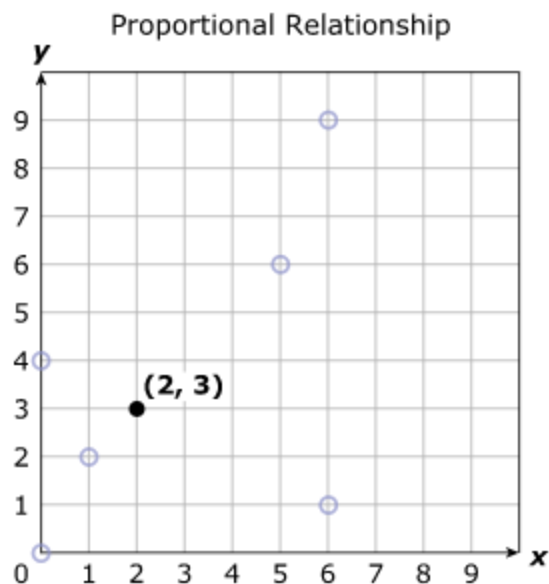
10.

Between which two consecutive integers on the number line is $\sqrt{17}$?

Select **TWO** locations on the number line to plot the points.
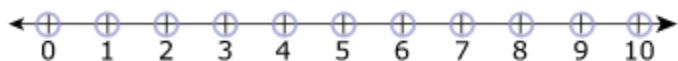
11.

A set of numbers is shown. Place the numbers in order from least to greatest.

Move the correct answer to each box.

| $\frac{67}{10}$ | -2π | $3\sqrt{5}$ | $6\frac{3}{4}$ | -6.25 |

Least   Greatest

12.

Quadrilateral *MNPQ* is translated 8 units to the left and 4 units up to create quadrilateral *M'N'P'Q'*. Write a rule that describes the translation that is applied to quadrilateral *MNPQ* to create quadrilateral *M'N'P'Q'*.

Move the correct answer to each box. Not all answers will be used.

| $x-8$ | $x+8$ | $8x$ | $y-4$ | $y+4$ | $4y$ |

Quadrilateral *MNPQ* was translated according to the rule $(x,\ y) \rightarrow ($ [........] ,
[........] $)$.

13.

A triangle undergoes a single transformation. For each type of transformation, indicate which features of the triangle remain the same.

Select the correct answer in each row.

Transformation	Orientation of the Vertices	Side Lengths
Dilation	☐	☐
Reflection	☐	☐

14.

The Venn diagram shows the relationship among several sets of numbers.

Real numbers

Rational numbers

Integers

Irrational numbers
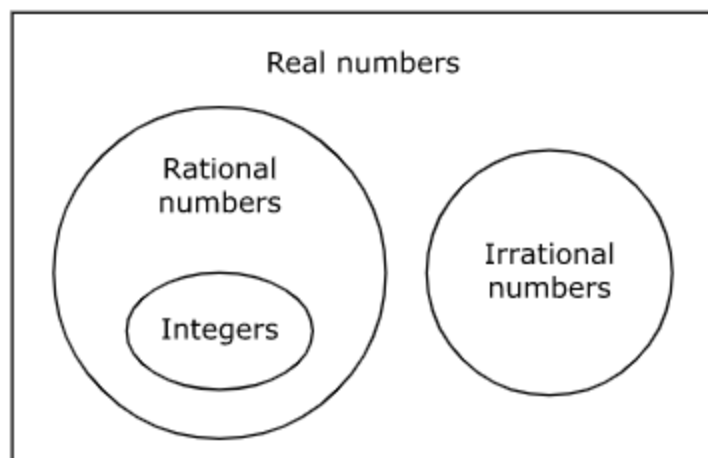
Indicate whether each number in the table belongs in each of these sets: irrational numbers, rational numbers, and integers.

Select the correct answer in each row.

Number	Irrational Number	Rational Number
$\sqrt{3}$	☐	☐
$\sqrt{9}$	☐	☐

15.

Which transformations applied to a triangle on a coordinate grid would preserve congruence?

Select **TWO** correct answers.

☐ $(x, y) \rightarrow \left(-\frac{1}{4}x, \frac{1}{4}y\right)$

☐ $(x, y) \rightarrow (x + 7, y - 8)$

☐ $(x, y) \rightarrow \left(\frac{2}{3}x, \frac{2}{3}y\right)$

☐ A reflection of the triangle across the x-axis

☐ A dilation by a scale factor of 2 with the origin as the center of dilation

16.

Which sets of ordered pairs represent y as a function of x?

Select **TWO** correct answers.

☐ $\{(0, 0), (-1, 2), (-1, -2), (-2, 4), (-2, -4)\}$

☐ $\{(0, 0), (1, 1), (2, 4), (3, 9), (3, 16)\}$

☐ $\{(0, 0), (0, 1), (0, 2), (0, -1), (0, -2)\}$

☐ $\{(0, 0), (-1, -0.5), (-2, -1), (-3, -1.5), (-4, -2)\}$

☐ $\{(0, 0), (1, 3), (2, 6), (3, 9), (4, 12)\}$

2021 STAAR EOC Algebra I New Item Types

1.

In the expression shown, x, y, and z are values where the expression is defined.

$$\frac{x^6yz^7}{xy^2z^2}$$

What is the simplest form of the expression?

Enter your answer in the space provided.

1	2	3	x	y	z		
4	5	6	+	-	•	÷	
7	8	9	<	≤	=	≥	>
	0		$\square^\square$	$\square_\square$	( )	$\sqrt{\square}$	π
.	-	$\frac{\square}{\square}$					

2.

A quadratic function is defined as $f(x) = (x+4)^2 - 18$. What is the equation for this function in standard form?

Enter your answer in the space provided.

$f(x) =$ [   ]

1	2	3	x				
4	5	6	$+$	$-$	$\bullet$	$\div$	
7	8	9	$<$	$\leq$	$=$	$\geq$	$>$
	0		$\square^{\square}$	$\square_{\square}$	$()$	$\sqrt{\square}$	π
$.$	$-$	$\frac{\square}{\square}$					

3.

What value of m satisfies the equation $6(4m - 3) + 6 = 4(4m + 11)$?

Enter your answer in the box.

[   ]

1	2	3
4	5	6
7	8	9
	0	
$.$	$-$	$\frac{\square}{\square}$

4.

The table shows the total cost of different numbers of square feet of carpet.

Carpet Costs

Number of Square Feet Purchased	Total Cost (dollars)
120	840
140	980
160	1,120
180	1,260

What is the rate of change of the total cost in dollars with respect to the number of square feet purchased for this linear relationship?

Enter your answer in the box.

1	2	3
4	5	6
7	8	9
	0	
.	-	$\frac{\Box}{\Box}$

5.

What is the graph of the function $f(x) = 6\left(\frac{2}{3}\right)^x$?

Select the type of graph. Drag the two points and the asymptote, if applicable, to their correct positions.

Linear

Absolute Value

Quadratic
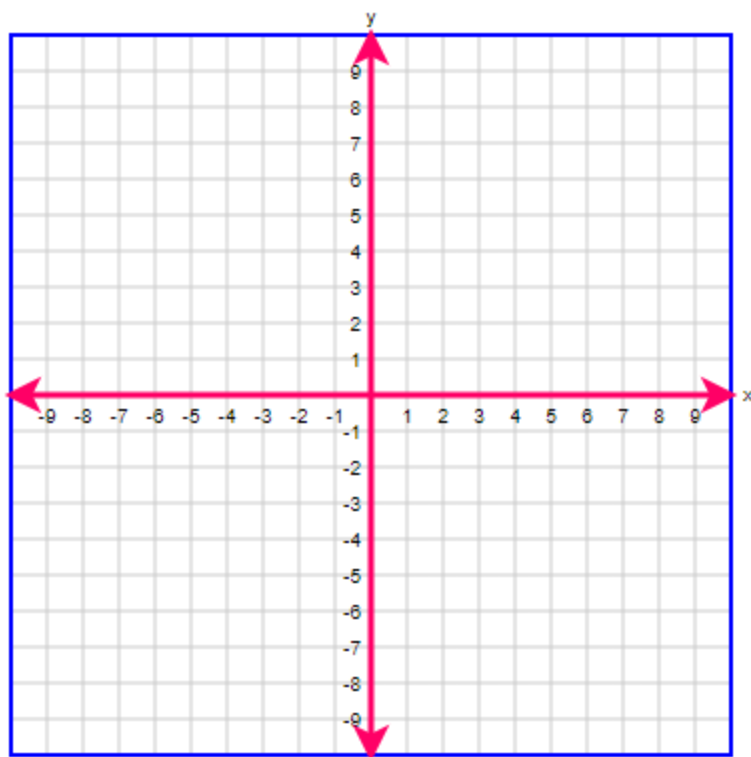
Exponential

6.

The graph of $f(x) = x^2$ was transformed to create the graph of $g(x) = -f(x - 3) + 4$. What is the graph of g?

Select the type of graph. Drag the two points and the asymptote, if applicable, to their correct positions.

Linear
Absolute Value
Quadratic
Exponential
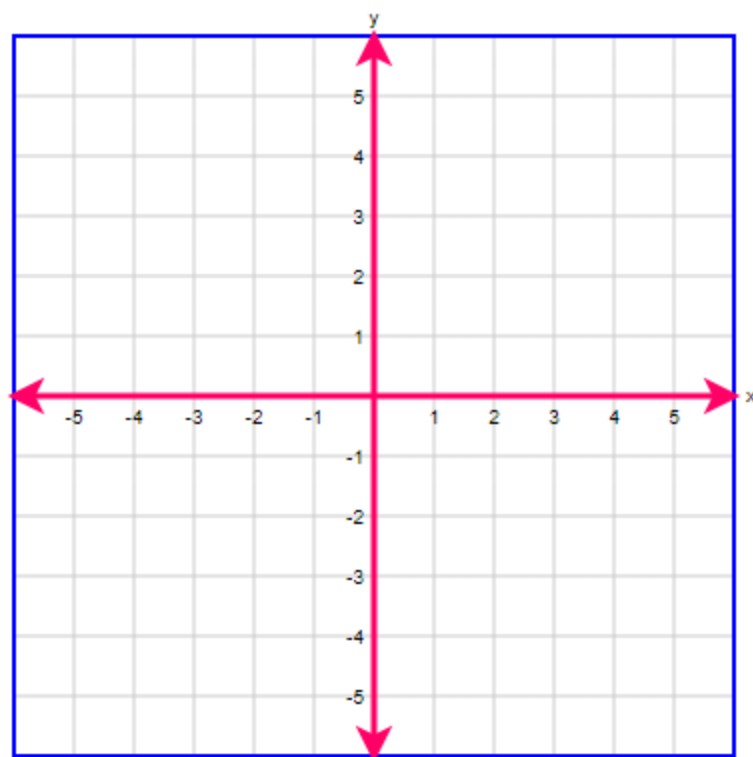
7.

The three points shown lie on the graph of a quadratic function. Graph the line of symmetry for the quadratic function.

Select two points on the coordinate plane. A line will connect the points.
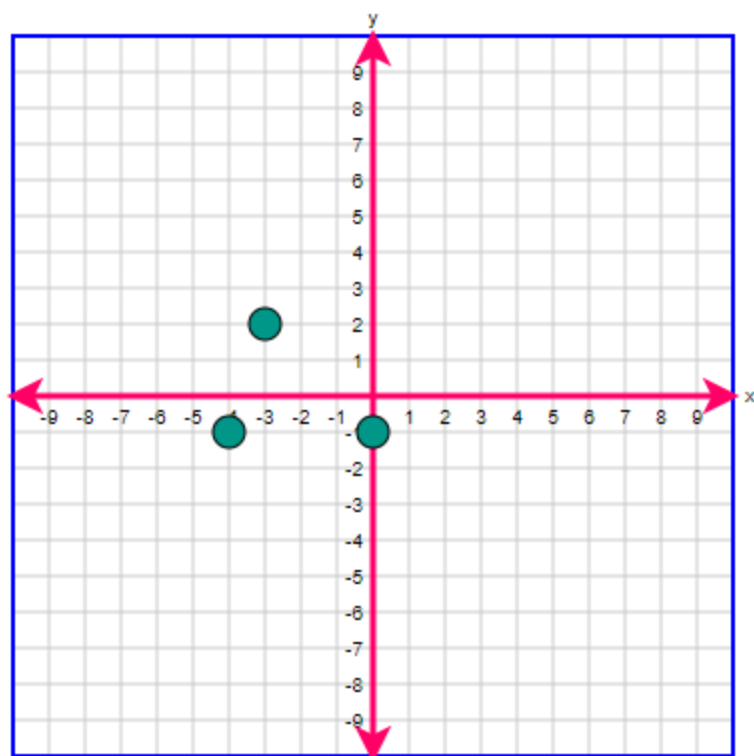
8.

Graph the line represented by the equation $3x - 5y = 15$.

Select two points on the coordinate grid. A line will connect the points.
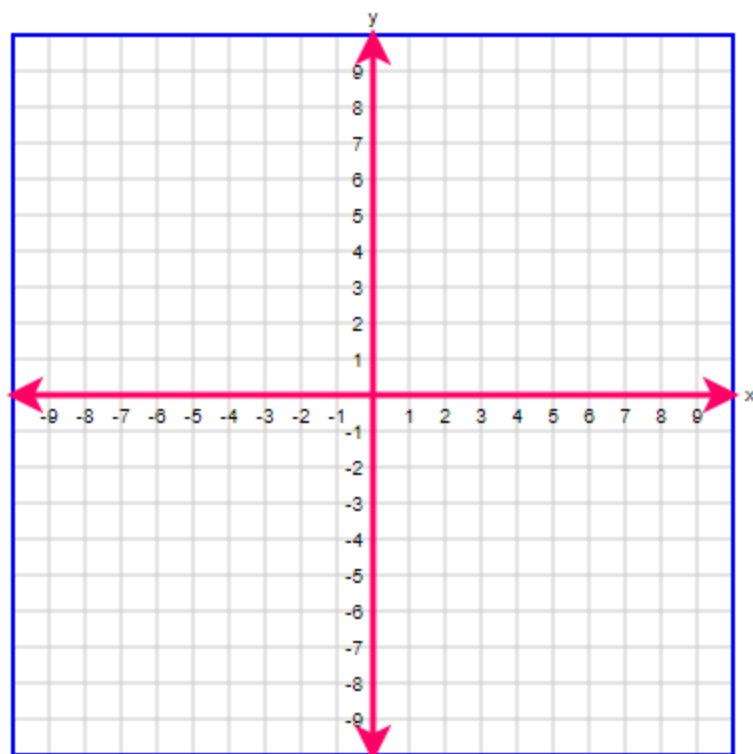
9.

What is the solution set for the system of linear inequalities shown?

$$y > -\frac{3}{4}x + 4$$
$$y < \frac{3}{2}x - 5$$

Graph the solution set of the system of linear inequalities in the coordinate plane.

- First, select the Graph 1 button to graph the line and choose the line style. To graph a line, select two points in the coordinate plane. A line will connect the points.

- Then select the Graph 2 button to graph the line and choose the line style.

- Then select the Solution Set button to select the desired region.

Graph 1

Line Type solid ▼

Graph 2

Line Type solid ▼
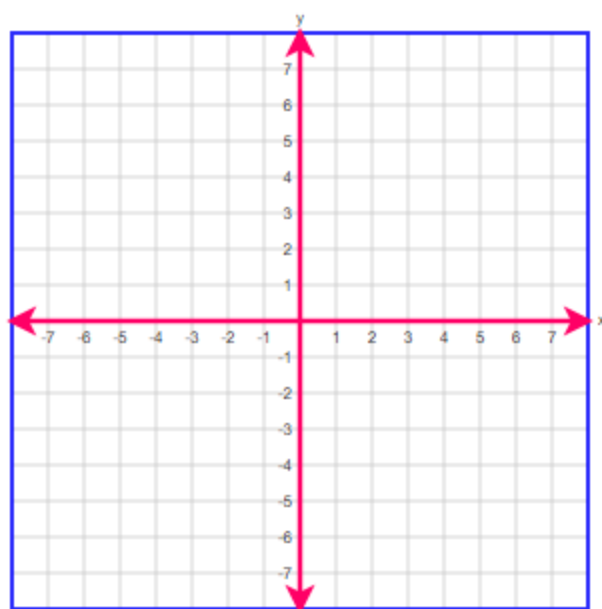
Solution Set

**10.**

What is the solution set for $5x + 6y \leq 30$?

Graph the solution set of the linear inequality in the coordinate plane.

- First, select the Graph button to graph the line and choose the line style. To graph a line, select two points in the coordinate plane. A line will connect the points.

- Then select the Solution Set button to select the desired region.
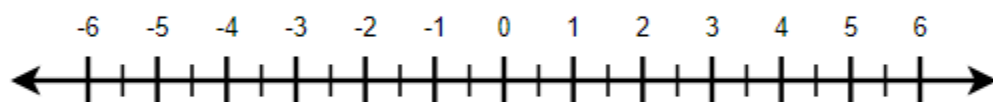
Graph

Line Type [solid ▾]

Solution Set
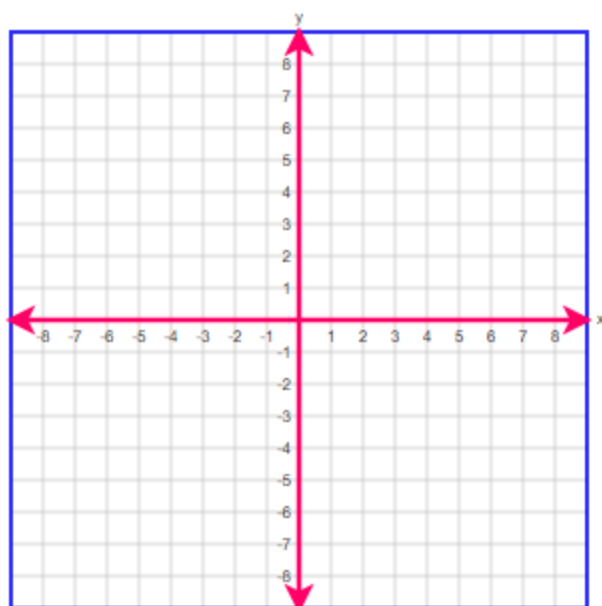
11.

Use the number line to represent all the solutions to the inequality
$-3(2j - 11) \geq 8j - 9$.

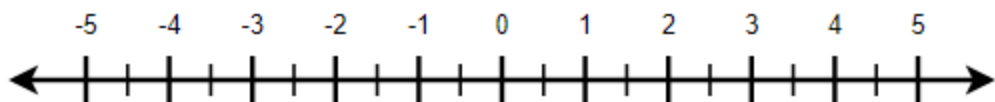Select a ray. Move the point on the ray to the correct place on the number line.

$\langle\!\!-\!\!\bullet$ $\langle\!\!-\!\!\circ$

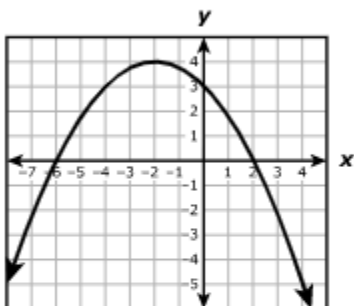$\circ\!\!-\!\!\rangle$ $\bullet\!\!-\!\!\rangle$

12.

What is the solution set to the inequality $m - 7 > -2(m + 0.5)$?

Select a ray. Move the point on the ray to the correct place on the number line.

$$-5 \quad -4 \quad -3 \quad -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5$$

13.

The graph represents a quadratic function.

Choose the correct answer from each drop-down menu to complete the statement.

The function has a [⌄] value of [⌄].

14.

Laboratory technicians recorded the population of a species of bacteria each hour for 7 hours. The population in thousands after x hours can be modeled by the exponential function $f(x) = 575(1 + 0.40)^x$.

Choose the correct answer from each drop-down menu to complete the statements.

The initial population of bacteria when the technicians began recording was [⌄].
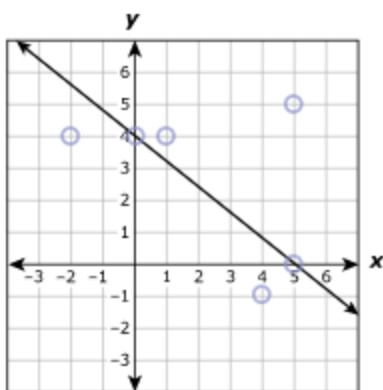
The population is [⌄] at a rate of [⌄] per hour.

15.

The graph of $4x + 5y = 20$ is shown on the grid. Which points are in the solution set of $4x + 5y < 20$?
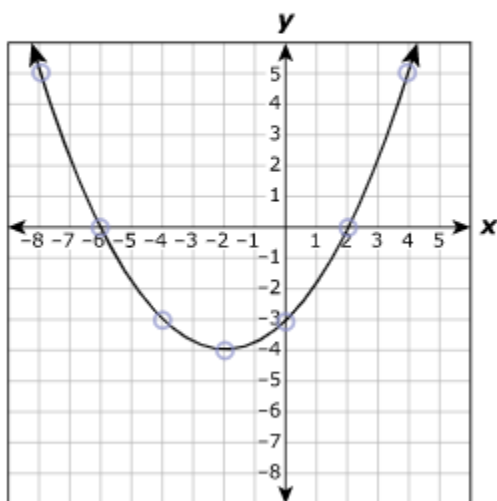
Select **TWO** correct answers.

16.

The graph of a quadratic function is shown. What are the zeros of the function?

Select **TWO** correct answers.

17.

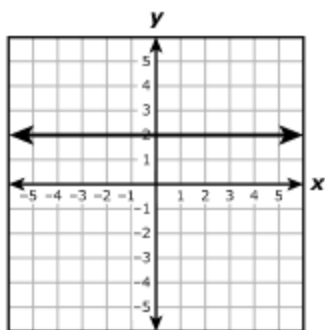What is the factored form of $2x^2 - 14x + 24$?

Move the correct answer to each box. Each answer may be used more than once. Not all answers will be used.

| + | − | 2 | 3 | 4 | 6 | 8 | 12 |

$$\boxed{}\left(x\ \boxed{}\ \boxed{}\right)\left(x\ \boxed{}\ \boxed{}\right)$$

18.

The graph of a line is shown.

What are the equation and the slope of the line?

Move the correct answer to each box. Not all answers will be used.
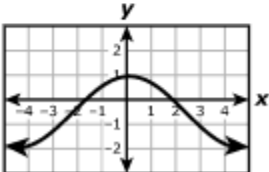
$x = 2$ $y = 2x$ $y = 2$ 0   2   undefined

Equation: [　　　　　]

Slope: [　　　　　]

19.

Which of the relations shown represent y as a function of x?

Select the correct answer in each row.

Relation	Function	Not a Function
$y = -3.4x$	☐	☐
(table below)	☐	☐
(graph below)	☐	☐

x	1	1	4	4	9	9
y	1	−1	2	−2	3	−3

20.

Indicate whether each statement is an example of association, causation, both association and causation, or neither association nor causation.

Select the correct answer in each row.

Statement	Association	Causation	Both	Neither
When the speed of a car decreases, the arrival time to a destination is later.	☐	☐	☐	☐
When the temperature increases, the sale of snow cones increases.	☐	☐	☐	☐
When the oven temperature increases, the cooking time for a casserole decreases.	☐	☐	☐	☐

21.

What are the domain and range of the function $f(x) = 3(x+9)^2 - 8$?

Select **TWO** correct answers.

☐ Domain: $x \geq -9$

☐ Domain: $y \geq -8$

☐ Domain: all real numbers

☐ Range: $x \geq -9$

☐ Range: $y \geq -8$

☐ Range: all real numbers

22.

The functions $f(x) = x$ and $g(x) = \frac{3}{4}f(x+4)$ are graphed on the same coordinate grid. Which statements are true?

Select **THREE** correct answers.

☐ The graph of f is steeper than the graph of g.

☐ The graph of g is steeper than the graph of f.

☐ To create g, f is translated 4 units to the left.

☐ To create g, f is translated 4 units to the right.

☐ The x-intercept of g is 4 units to the left of the x-intercept of f.

☐ The x-intercept of g is 4 units to the right of the x-intercept of f.