



Unit 8: Multiple Representations

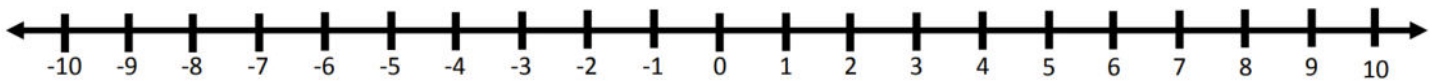
Name _____

Teacher _____

Class Period _____

F	D	P
		10%
		12.5%
		20%
		25%
		33. $\bar{3}$ %
		50%
		100%

Thousands	Hundreds	Tens	Ones	Decimal Point	Tenths	Hundredths	Thousandths	Ten Thousandths	Hundred Thousandths
1,000	100	10	1	and	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1,000}$	$\frac{1}{10,000}$	$\frac{1}{100,000}$



Warm-up

Warm-up

Think Along Plan Recording Sheet

<p># <input type="text"/></p> <p>Analyze:</p> <p>Plan:</p> <p>Solve:</p>	<p># <input type="text"/></p> <p>Analyze:</p> <p>Plan:</p> <p>Solve:</p>
<p>Answer</p>	<p>Answer</p>
<p># <input type="text"/></p> <p>Analyze:</p> <p>Plan:</p> <p>Solve:</p>	<p># <input type="text"/></p> <p>Analyze:</p> <p>Plan:</p> <p>Solve:</p>
<p>Answer</p>	<p>Answer</p>

Think Along Plan Recording Sheet

<p># <input type="text"/></p> <p>Analyze:</p> <p>Plan:</p> <p>Solve:</p>	<p># <input type="text"/></p> <p>Analyze:</p> <p>Plan:</p> <p>Solve:</p>
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<p>Answer</p>	<p>Answer</p>

Fraction-Decimal-Percent

Conversion Chart

Name _____

Decimal	Fraction	Percent
		18%
		28%
		78%
		96%
		50%
	$\frac{3}{10}$	
	$\frac{2}{5}$	
	$\frac{1}{4}$	
	$\frac{11}{20}$	
	$\frac{1}{5}$	
0.35		
0.75		
0.8		
0.04		
0.65		

Integers Math Riddle

Solve the math problems. Find the answer below and write the letter to solve the riddle.

E $(-17) + 53 = \underline{\hspace{2cm}}$

T $82 + (-25) = \underline{\hspace{2cm}}$

B $9 \cdot (-4) = \underline{\hspace{2cm}}$

A $(-72) \div (-8) = \underline{\hspace{2cm}}$

L $(-3) \cdot (-8) = \underline{\hspace{2cm}}$

H $(-39) + (-42) = \underline{\hspace{2cm}}$

N $13 - 56 = \underline{\hspace{2cm}}$

P $(-42) \div 6 = \underline{\hspace{2cm}}$

R $(-29) - (-33) = \underline{\hspace{2cm}}$

S $96 - (-21) = \underline{\hspace{2cm}}$

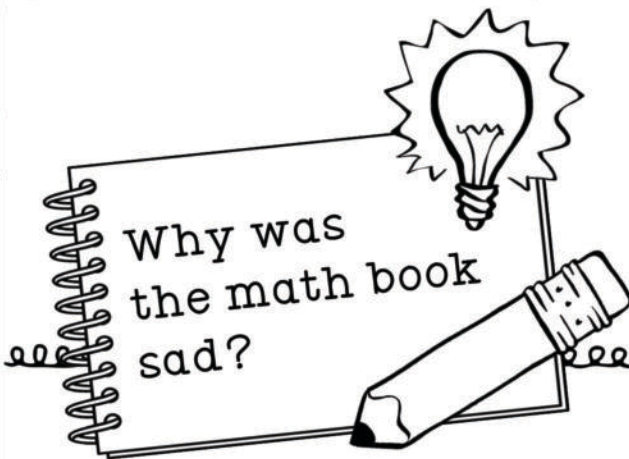
I $4 \cdot 4 = \underline{\hspace{2cm}}$

O $18 \div (-6) = \underline{\hspace{2cm}}$

M $(-5) \cdot 7 = \underline{\hspace{2cm}}$

Y $(-68) - 46 = \underline{\hspace{2cm}}$

D $58 + (-39) = \underline{\hspace{2cm}}$



16 57

-81 9 19

57 -3 -3

-35 9 -43 -114

-7 4 -3 -36 24 36 -35 117

!

Name: _____

Date: _____

Period: _____

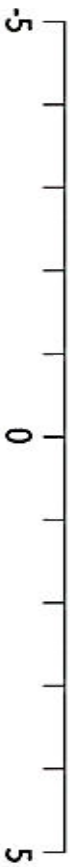
For each number line: Annotate the number line (fill in the missing numbers). Then, plot and label each rational number on the number line.

A)	$ -3 $	$\frac{1}{4}$	$1\frac{1}{2}$	$-2\frac{1}{2}$
----	--------	---------------	----------------	-----------------

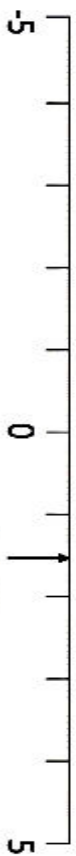


Example: $|-3|$
(absolute value of $-3 = 3$)

B)	$ -4.5 $	2.8	$-\frac{1}{2}$	-3.5
----	----------	-------	----------------	--------

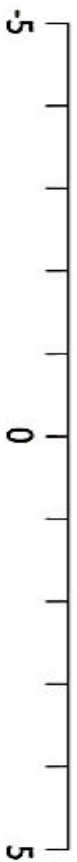


F)	$ -1\frac{1}{2} $	$\frac{5}{2}$	-1.2	$-3\frac{1}{4}$
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Example: $|-1\frac{1}{2}|$

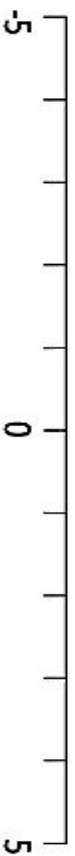
G)	$-\frac{7}{2}$	$ -2.3 $	$4\frac{1}{3}$	-0.8
----	----------------	----------	----------------	--------



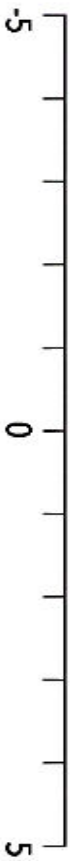
C)	$ -0.5 $	-4.5	$ -3\frac{1}{4} $	$-1\frac{3}{4}$
----	----------	--------	-------------------	-----------------



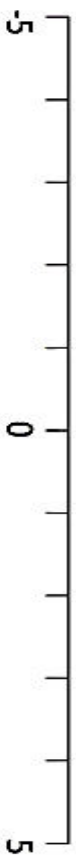
H)	$ -0.6 $	$-\frac{5}{2}$	$1\frac{2}{3}$	$ -3.2 $	$-\frac{3}{4}$
----	----------	----------------	----------------	----------	----------------



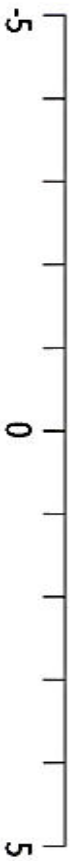
D)	$ 2\frac{1}{2} $	$-3\frac{1}{2}$	-2.3	$ -4 $
----	------------------	-----------------	--------	--------



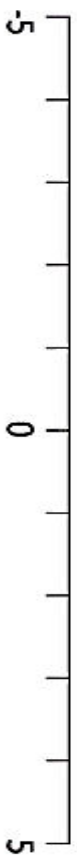
I)	$ -4.3 $	-0.7	$ -0.2 $	$-\frac{9}{4}$	-3.6
----	----------	--------	----------	----------------	--------



E)	$2\frac{1}{4}$	$-4\frac{1}{2}$	-2.8	$ -3.7 $	-0.3
----	----------------	-----------------	--------	----------	--------



J)	$ -3\frac{3}{4} $	-4.2	$-\frac{7}{3}$	0.5	$-\frac{3}{5}$
----	-------------------	--------	----------------	-------	----------------



Name: _____ Date: _____ Period: _____

One-Step Equations and Inequalities

#1-8: Solve the equation, showing each step to justify your answer. Graph the solution on a number line.

1. $w - 21 = 14$

2. $\frac{r}{-4} = 14$

3. $y \div 8 = -2$

4. $3d = 57$

5. $-8 + x = 17$

6. $n - 15 = 33$

7. $130 = 42 + p$

8. $x \bullet (-5) = 60$

#9-10: Write an equation that represents the verbal description. Solve, showing steps to justify your answer. Graph the solution on a number line.

9. The length of a room is 7 feet longer than the width. The width of the room is 74 feet. Find the length of the room.

10. Humza bought a used cell phone from Derf for \$465 less than its retail price. He paid a total of \$100 for the cell phone. What was the retail price of the cell phone?

#11-18: Solve the inequality, showing each step to justify your answer. Graph the solution on a number line.

11. $7 \leq x + 11$

12. $2a > 88$

13. $t - 3 < 12$

14. $-9n \leq 117$

15. $\frac{b}{6} \geq \frac{1}{6}$

16. $\frac{x}{2} < -4$

17. $w + 1 > -12$

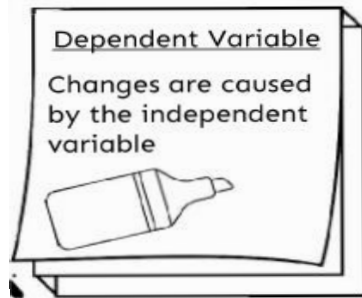
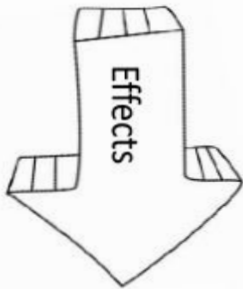
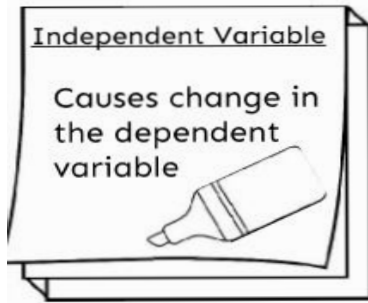
18. $a - 13 \leq -24$

#19-21: Write an inequality that represents the verbal description. Solve, showing steps to justify your answer. Graph the solution on a number line.

19. Ecila wants to buy a pet toad but she left her wallet at home. Derf gives her \$20 and now she can afford the toad. What inequality describes the cost of the toad, t ?

20. The area a of a science classroom, minus the 10 square feet for the teacher's desk, should be at least 462 square feet.

21. The maximum number of students s that can be on a school bus is three per seat. If the bus has 72 seats, how many students may be on the bus?

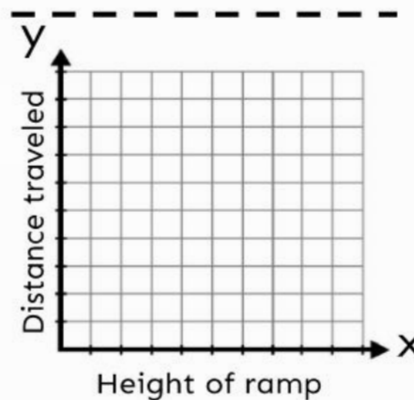


Independent and Dependent Variables

Jackie tested how the height of a ramp affected the distance a toy car travels.

Independent Variable:
Height of ramp

Dependent Variable:
Distance a car travels



The independent variable is always on the x-axis

The dependent variable is always on the y-axis

1. Use the table below to write an equation that shows the relationship between the independent and dependent variables.

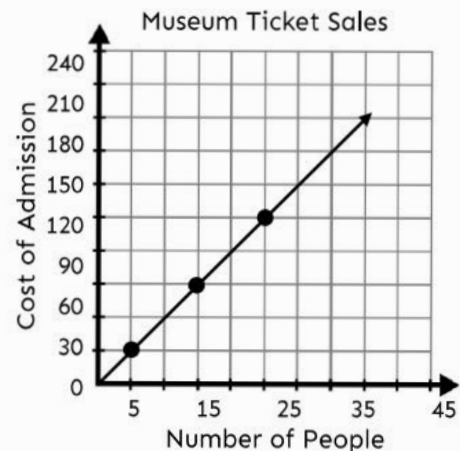
x	3	4	5	6	7
y	6	7	8	9	10

2. Brian conducted an experiment to test how different types of paper affected the distance a paper airplane traveled. Identify the independent and dependent variables.

Independent Variable:

Dependent Variable:

3. Use the graph to answer the following questions.



Identify the independent variable

Identify the dependent variable

Describe the relationship between the independent and dependent variables.

Match the independent variable to the dependent variable with an arrow.

Independent Variable

Amount of sunlight

Time spent studying

Minutes spent exercising

Number of tickets sold

Dependent Variable

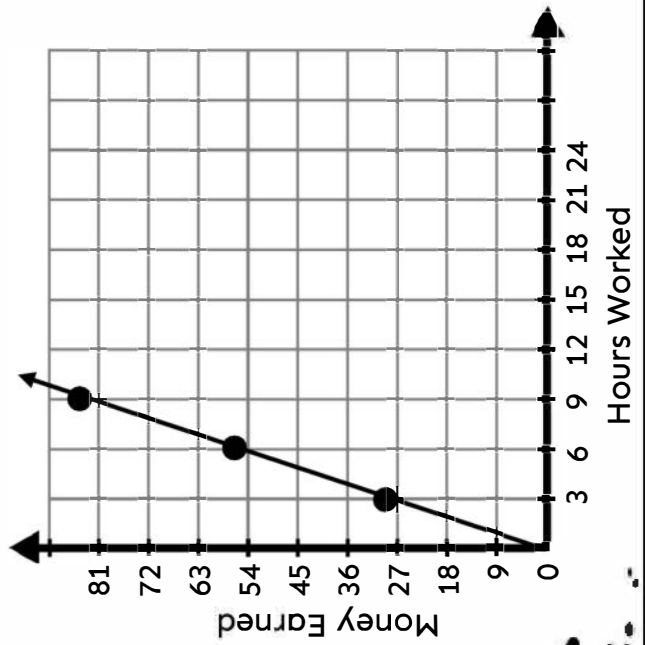
Test grade

Height of plant

Amount of profit

Calories burned

Carly earns \$9.50 for every hour she works.



Independent Variables:
Hours Worked

Dependent Variable:
Money Earned

What is the relationship between the independent and the dependent variable?

You can show the relationship between the independent and dependent variable in a table and an equation.

Table:

Hours Worked (x)	Money Earned (y)
1	\$9.50
2	\$19
3	\$28.50

Equation:
 $y=9.5x$

Name: _____ Date: _____ Period: _____

It depends... or does it?

For each of the following examples, identify the independent and dependent variables. Remember: there may be more than just two variables in an experiment, but a good experiment will be measuring how input affects output.

INPUT * INDEPENDENT * X * CAUSE * START * INTENTIONAL CHANGE
OUTPUT * DEPENDENT * Y * EFFECT * RESULT * OBSERVED CHANGE

Experiment 1

Spider-Man and Ned were testing the distance he could shoot his web depending on the angle at which he points his web shooter. He tested this 3 times at each angle.

0°: 18.2m, 16.7m, and 17.9m **45°:** 79.6m, 74.3m, and 76.2m **75°:** 62.4m, 61.5m, and 62.7m

Independent variable: _____

Dependent variable: _____

Experiment #2

Neville (ahem - Professor Longbottom) grew snake plants in the greenhouses at various temperatures. The height of each plant was measured after one month of growth. (Professor Longbottom later repeated this experiment 3 times during the school year.)

The first time, he recorded this data.

4°C: 4 cm	8°C: 10 cm	12°C: 14 cm
16°C: 18 cm	20°C: 24 cm	24°C: 12 cm

Independent variable: _____

Dependent variable: _____

Experiment #3

Dory and Nemo were counting the number of clown fish that lived in different colored sea anemones. They counted the fish once every week for three weeks. Nemo helped keep track of the data, of course. Dory just kept counting, just kept counting...

Orange: 17, 20, and 23 fish **Purple:** 18, 21, and 24 fish **White:** 23, 26, and 30 fish

Independent variable: _____

Dependent variable: _____

Experiment 4:

Bruno Mars wondered if the day of the week impacted how many fans attended his concerts. He performed his concert on a Tuesday, Friday, and Saturday in Chicago.

Tuesday: 28,117 fans **Friday:** 32,586 fans **Saturday:** 31,794 fans

Independent variable: _____

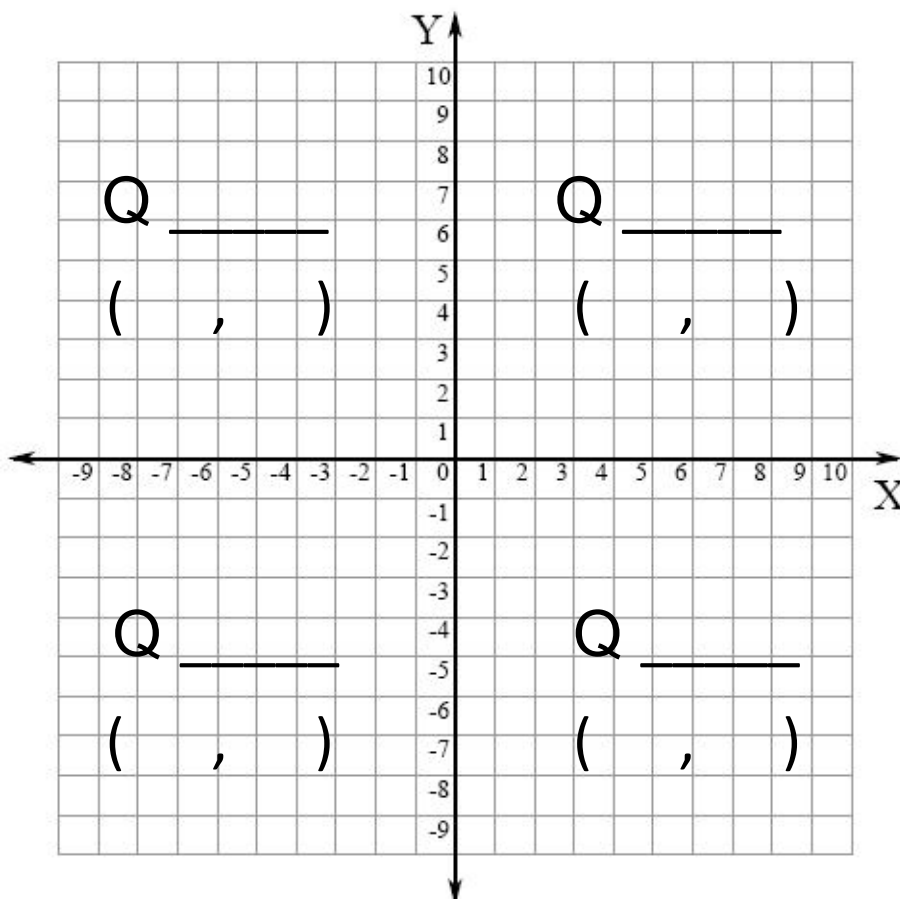
Dependent variable: _____

Graphing on the Coordinate Plane

co-or-din-ate

In Latin, "co" means *together*, and "ordinate" means *ordered* ("in order by number").

- A coordinate system, or coordinate plane, locates points in a 2-dimensional plane.
- The horizontal number line is the _____.
- The vertical number line is the _____.
- Their intersection is the _____, which is at the coordinates (,).



The coordinate plane contains four **quadrants**, numbered by Roman numerals I, II, III, and IV. Q 1 is the FIRST quadrant you learn about. The quadrants are numbered following a C shape.

Any point can be identified within one of the four quadrants in the coordinate plane using a specific **ordered pair** of numbers, called its _____.

Each point is defined on the coordinate plane by one (and only one) ordered pair. **(x , y)**

- The first number in an ordered pair is the _____ coordinate.
- The second number is the _____ coordinate.

Example: **(3,2)** 3 is the **x-coordinate**, and 2 is the **y-coordinate**.

To graph a point: "RUN TO THE ELEVATOR!"

Start at the origin. Move on the x-axis first, left or right; then move on the y-axis, up or down.

Tell what point is located at each ordered pair.

1. $(3, -2)$ _____ 2. $(2, 3)$ _____ 3. $(-5, 5)$ _____
 4. $(-7, -8)$ _____ 5. $(-4, 4)$ _____ 6. $(-5, 0)$ _____

Write the ordered pair for each given point.

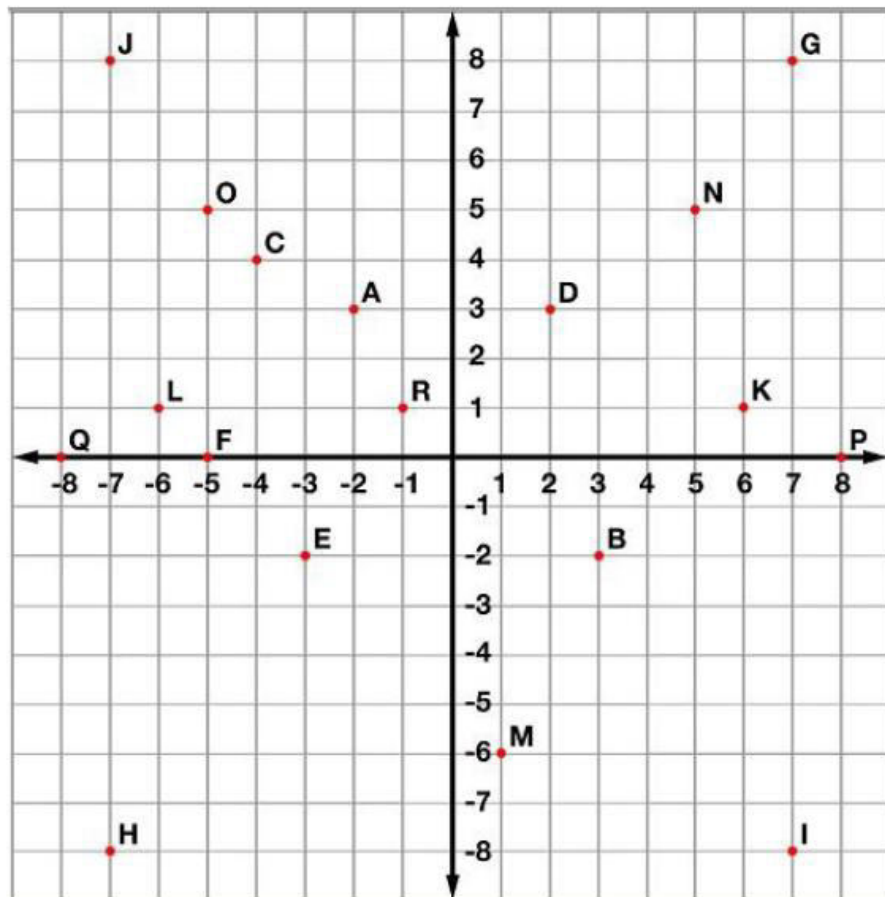
7. E _____ 8. M _____ 9. P _____
 10. G _____ 11. Q _____ 12. N _____

Plot the following points on the coordinate grid.

13. S $(-6, -3)$ 14. T $(2, -4)$ 15. U $(5, 8)$

Identify the quadrant containing each point.

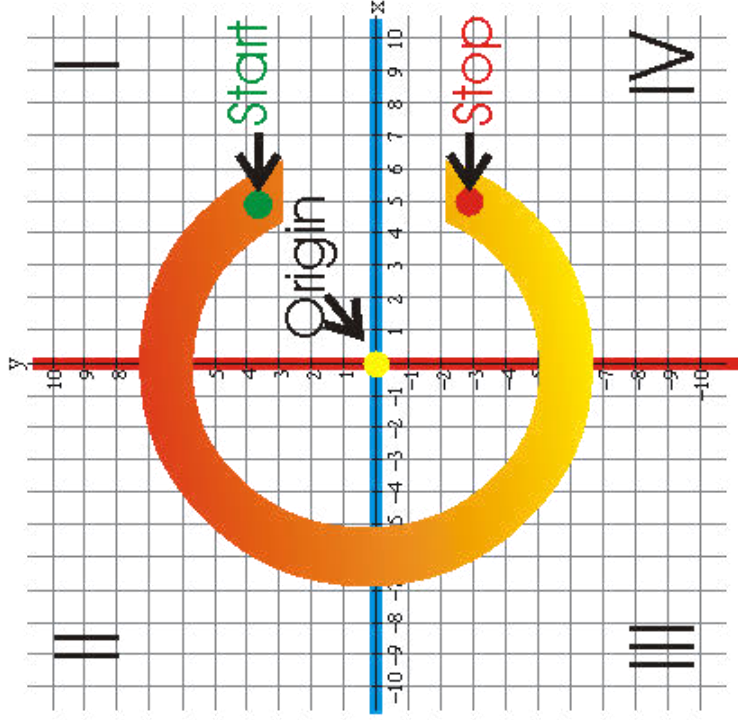
16. B 17. J 18. I 19. D 20. E



Quadrants of The Coordinate Plane

Quadrant 2

all x values are
negative
all y values are
positive



Quadrant 1

all x values are
positive
all y values are
positive

Quadrant 3

all x values are
negative
all y values are
negative

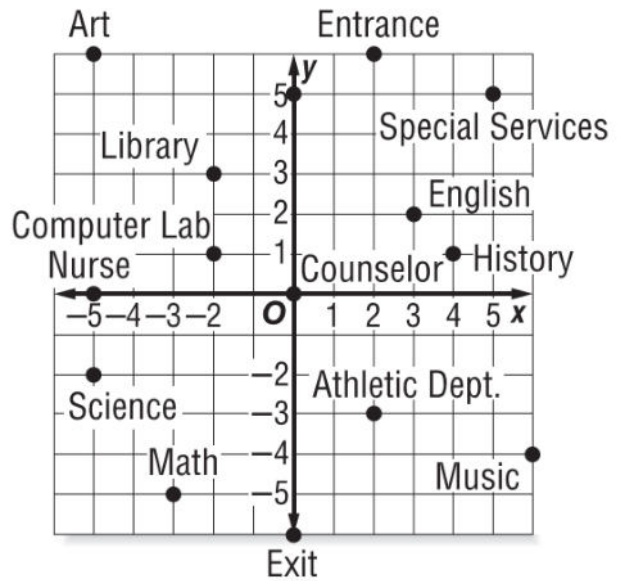
Quadrant 4

all x values are
positive
all y values are
negative

Practice: Word Problems

The Coordinate Plane

For Exercises 1–4, use the coordinate plane at the right. It shows a map of the rooms in a middle school.



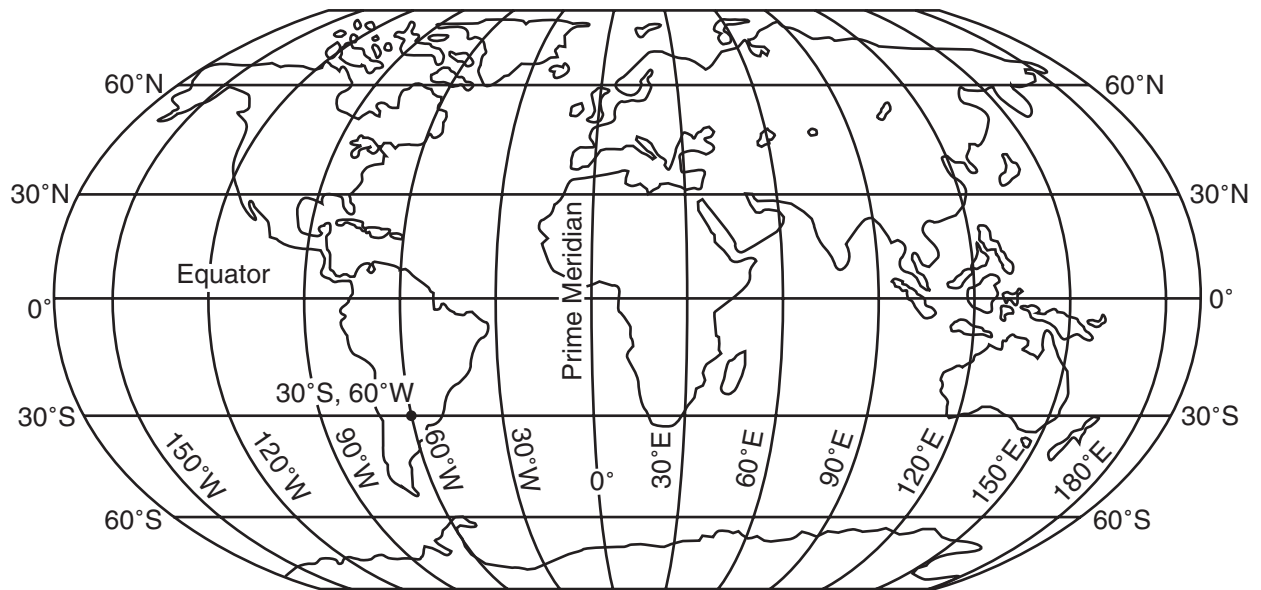
<p>1. Thalia is in the room located at $(-2, 1)$. What room is she in? Describe in words how to get from the origin to this point.</p>	<p>2. Thalia's next class is 8 units to the right and 5 units down on the map from where she is now. In what room is Thalia's next class? Find the ordered pair that represents the location of that room.</p>
<p>3. Tyrone is in the Art room, but his next class is in the History room. Give Tyrone directions on how to get to the History room.</p>	<p>4. On the map, which classrooms are located in the third quadrant? Describe the coordinates of all points in the third quadrant.</p>
<p>5. NEIGHBORHOOD Delsin made a map of his neighborhood in such a way that each intersection is a point on a coordinate plane. Right now, Delsin stands at point $(-4, -3)$. Give the ordered pair of where he will be if moves 5 units to the right and 7 units up on the map.</p>	<p>6. NEIGHBORHOOD Refer to Exercise 5. In which quadrant is Delsin when he is done walking? Describe this quadrant.</p>

Enrichment

Latitude and Longitude

This world map shows some of the latitude and longitude lines. Latitude is measured in degrees north and south of the equator. Longitude is measured in degrees east and west of the prime meridian, a line passing through Greenwich, England. (Greenwich is a suburb of London.)

The latitude is usually given first. For example, the location of 30°S, 60°W is lower South America.

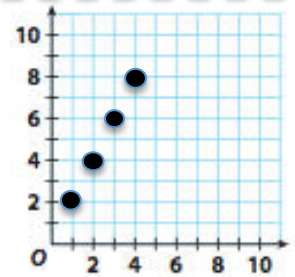


Name a place near each location. Use an atlas or other reference source to check your answers.

1. 30°N, 30°W
2. 30°S, 30°E
3. 60°N, 120°W
4. 15°N, 150°W
5. 30°S, 140°E
6. 25°N, 100°W
7. 40°N, 120°W
8. 45°N, 90°W
9. 40°N, 5°W
10. 60°N, 45°W
11. 35°N, 140°E
12. 0°, 60°E

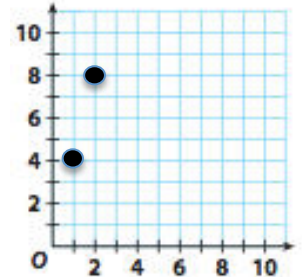
x	y
1	4
2	8
3	12
4	16

$$y = 2x$$



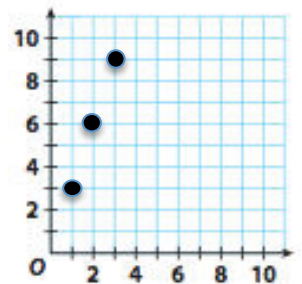
x	y
1	3
2	6
3	9
4	12

$$y = 4x$$



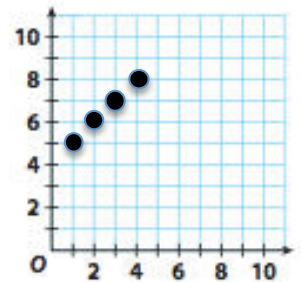
x	y
1	2
2	4
3	6
4	8

$$y = 3x$$



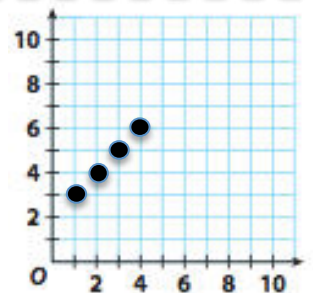
x	y
1	3
2	4
3	5
4	6

$$y = x + 4$$



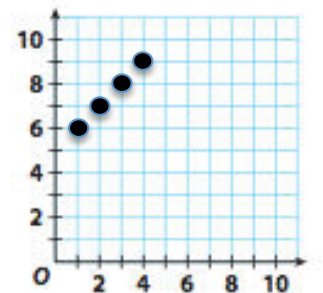
x	y
1	5
2	6
3	7
4	8

$$y = x + 5$$



x	y
1	6
2	7
3	8
4	9

$$y = x + 2$$



1. Fred's family already has four dogs. They adopt more dogs. Find the table, equation and graph that show the relationship between the adopted dogs and the total number of dogs in Fred's family.

Table

Equation

Graph

2. Every state has two U.S. senators. The number of electoral votes a state has is equal to the total number of U.S. senators and U.S. representatives. Find the table, equation and graph that show the relationship between the number of representatives and the number of electoral votes.

Additive or multiplicative? _____

Table

Equation

Graph

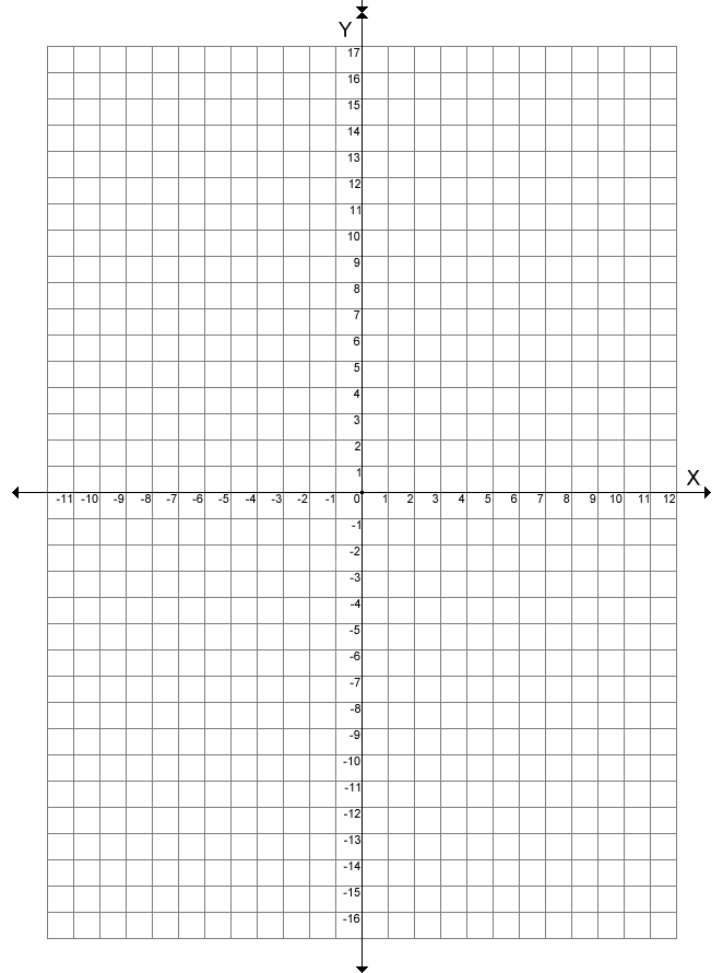
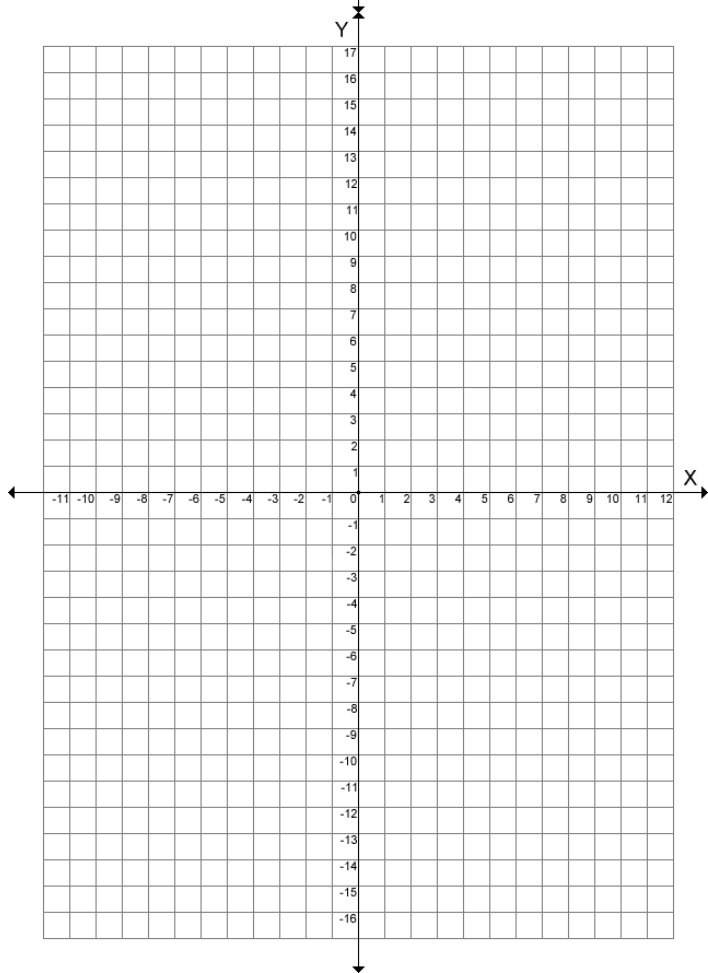
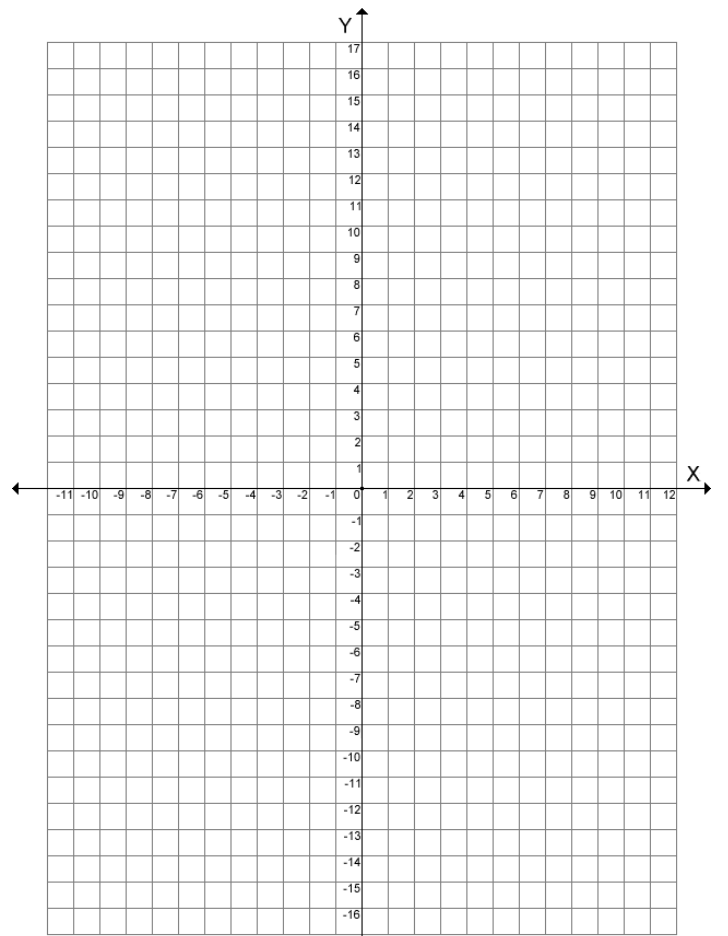
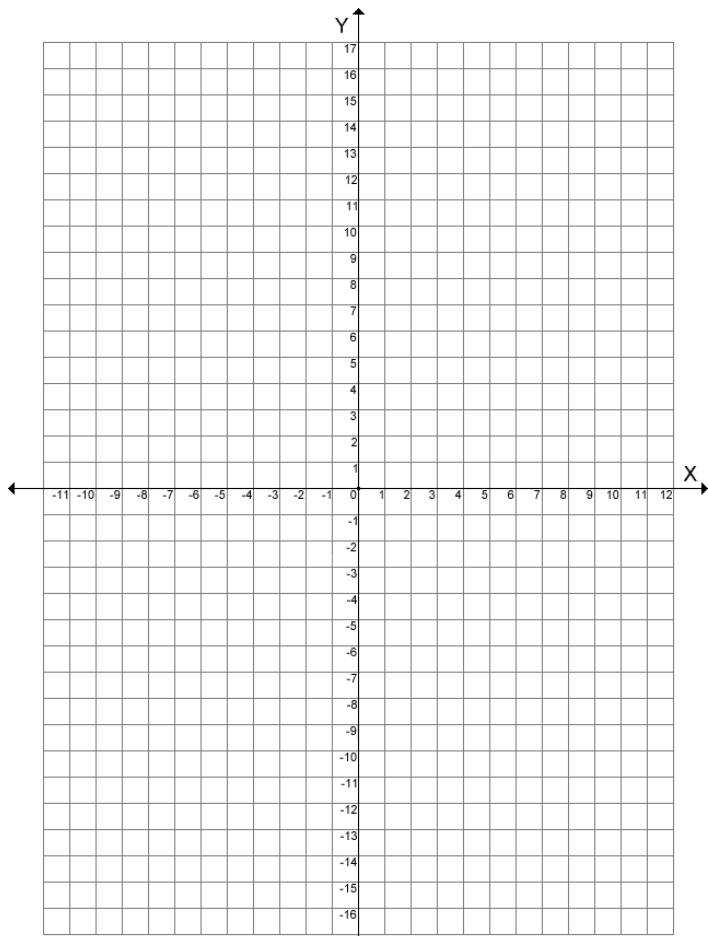
3. Jolene is packing her lunch for school. The empty lunch box weighs five ounces. Find the table, equation, and graph that show the relationship between the weight of the items in Jolene's lunch and the total weight of the packed lunch box.

Additive or multiplicative? _____

Table

Equation

Graph



4. Frannie orders three DVDs per month from her DVD club. Find the table, equation and graph that show the relationship between the number of months and the total number of DVDs Frannie has.

Additive or multiplicative? _____

Table

Equation

Graph

5. Ollie sells bracelets for two dollars each and donates the money he collects to a charity. Find the table, equation, and graph that show the relationship between the number of bracelets sold and the total donation Ollie makes.

Additive or multiplicative? _____

Table

Equation

Graph

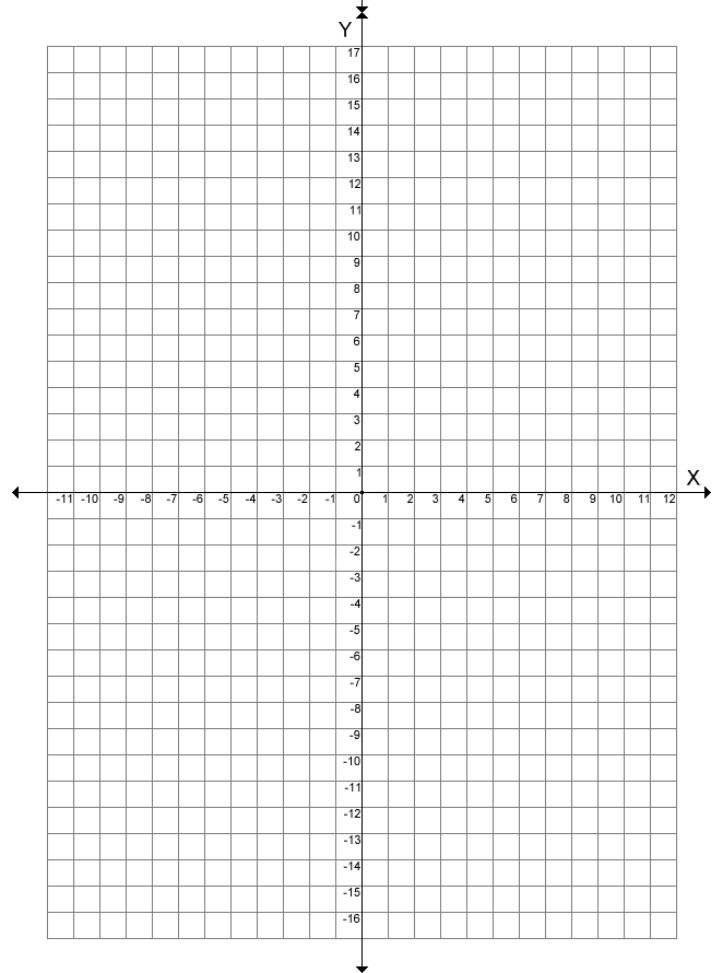
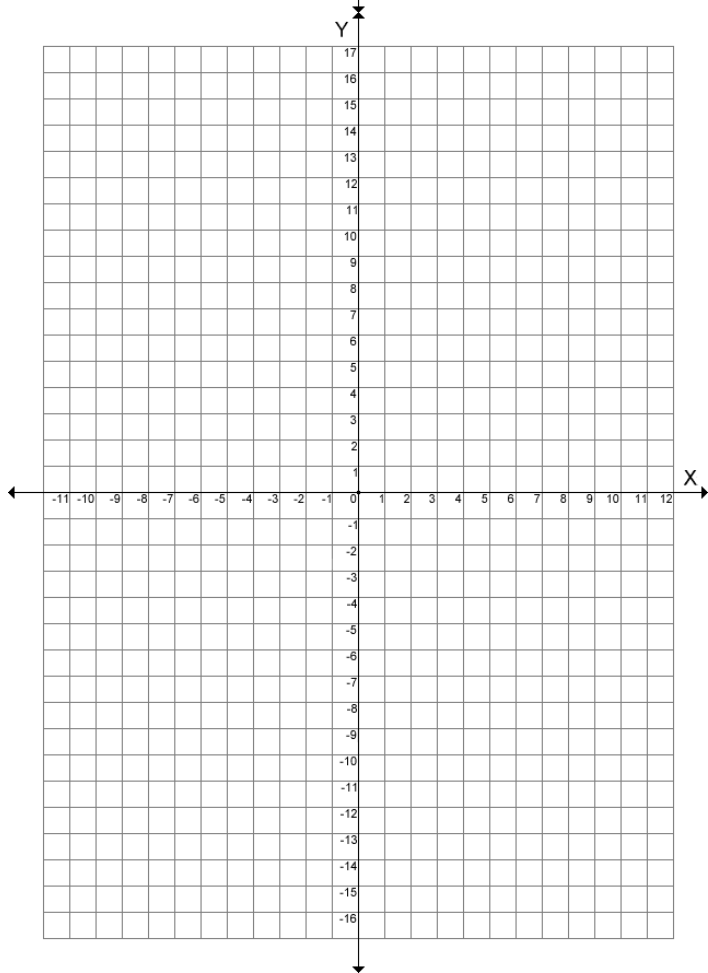
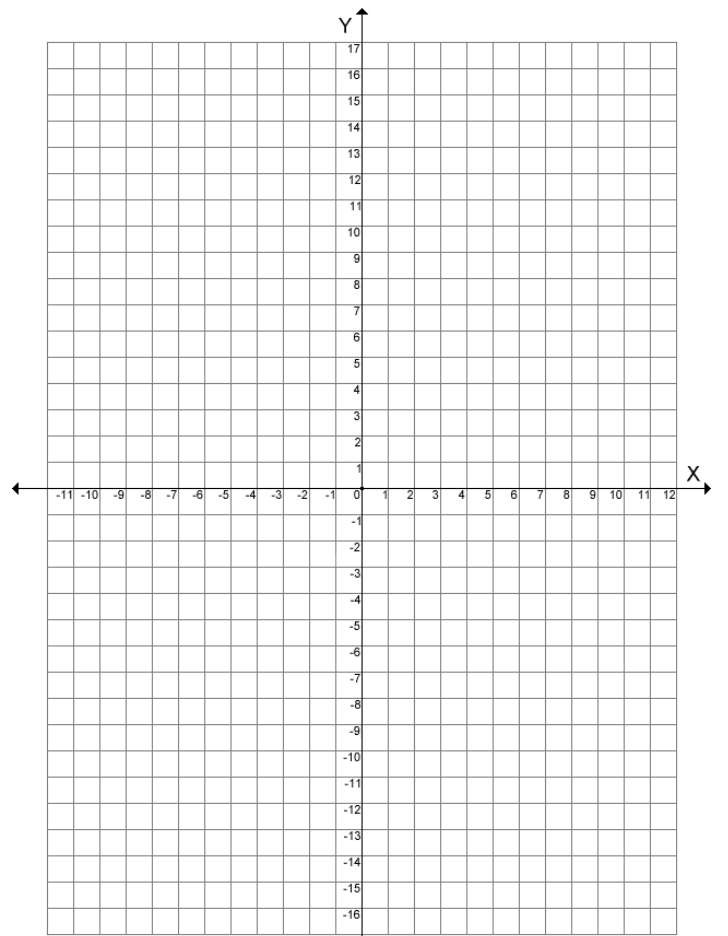
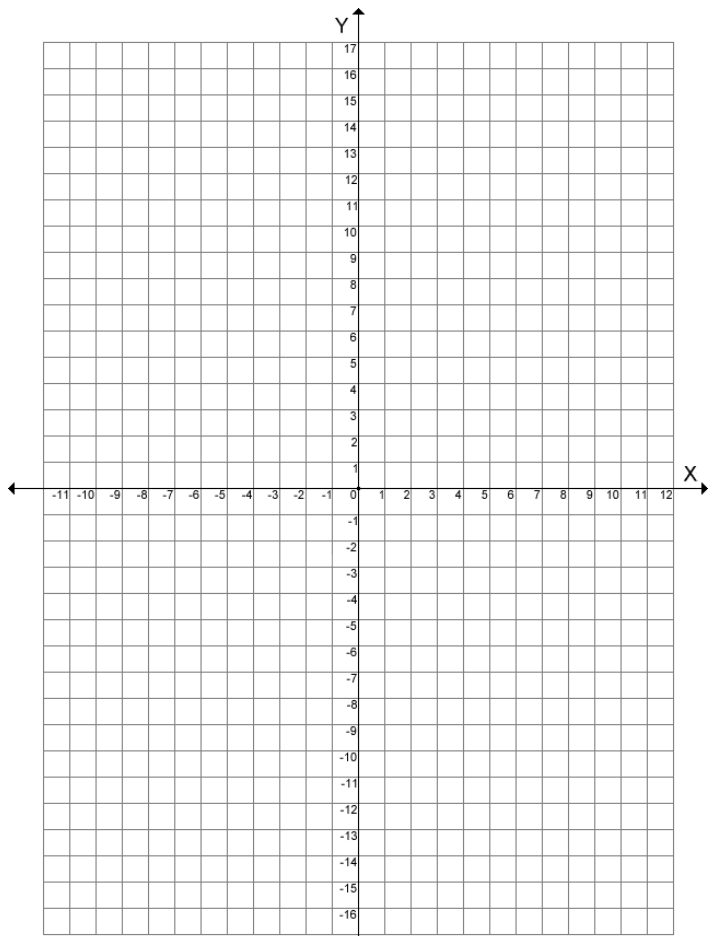
6. Frank's karate class meets four days every week. Find the table, equation, and graph that show the relationship between the number of weeks and the total number of karate classes.

Additive or multiplicative? _____

Table

Equation

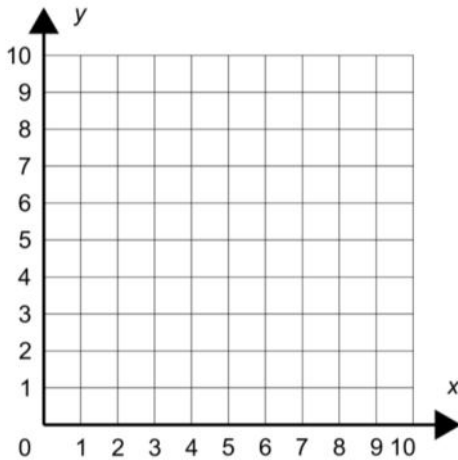
Graph



ADDITIVE VS. MULTIPLICATIVE RELATIONSHIPS NOTES AND PRACTICE

Use the table below to graph the data on the coordinate plane and connect the ordered pairs.

X	Y
2	4
3	6
4	8



What do you notice about the graph when the points are connected?

Do you think all graphs will be this way?

Why do you think this graph made a straight line?

Graphs are linear when the x and y coordinates have an _____ or _____ relationship.

ADDITIVE RELATIONSHIPS

When a number is being _____ to the x-values (_____) to yield the y-values (_____), the relationship is _____.

X (INPUT)	RULE	Y (OUTPUT)
5		10
6		
7		

MULTIPLICATIVE RELATIONSHIPS

When the x-values (_____) are being _____ by a number to yield the y-values (_____), the relationship is _____.

X (INPUT)	RULE	Y (OUTPUT)
5		10
6		
7		

ADDITIVE RELATIONSHIPS

MULTIPLICATIVE RELATIONSHIPS

Additive relationships are described using the equation:

Multiplicative relationships are described using the equation:

a represents the number being _____.

a represents the number you will _____ by.



LET'S PRACTICE!



Write an equation using the tables below. Then, indicate whether each table represents an additive or a multiplicative relationship.

1.

X	Y
0	0
1	5
2	10
3	15

EQUATION:	ADDITIVE OR MULTIPLICATIVE:

2.

# OF HOTDOGS	\$ EARNED
2	6
4	8
6	10
8	12

EQUATION:	ADDITIVE OR MULTIPLICATIVE:

3.

INPUT	1	2	4	5
OUTPUT	2.5	3.5	5.5	6.5

EQUATION	
ADDITIVE OR MULTIPLICATIVE	

COMPARING MILEAGE

Name: _____
Date: _____ Period: _____

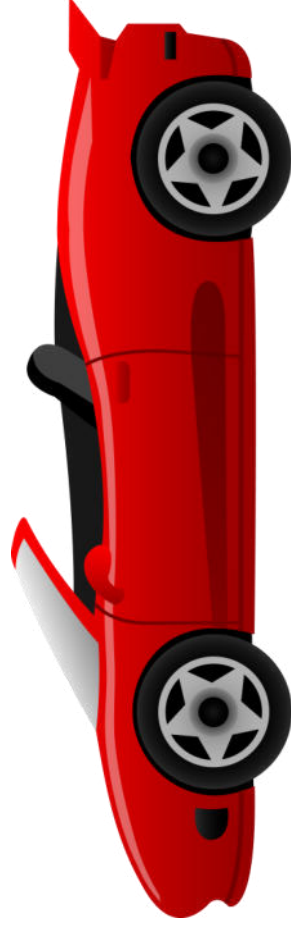
ROCKET

Car Lover magazine is reporting that the new 2014 Rocket is the most fuel-efficient car on the market! Test drives have shown that the Rocket gets up to 26 miles per gallon on the highway.

CAMBRIA

If you're looking for a new car, the Cambria is the best bang for your buck. The table below shows data for test drives on the highway:

Gallons Used	3	8	10	16
Miles Driven	73.5	196	245	392

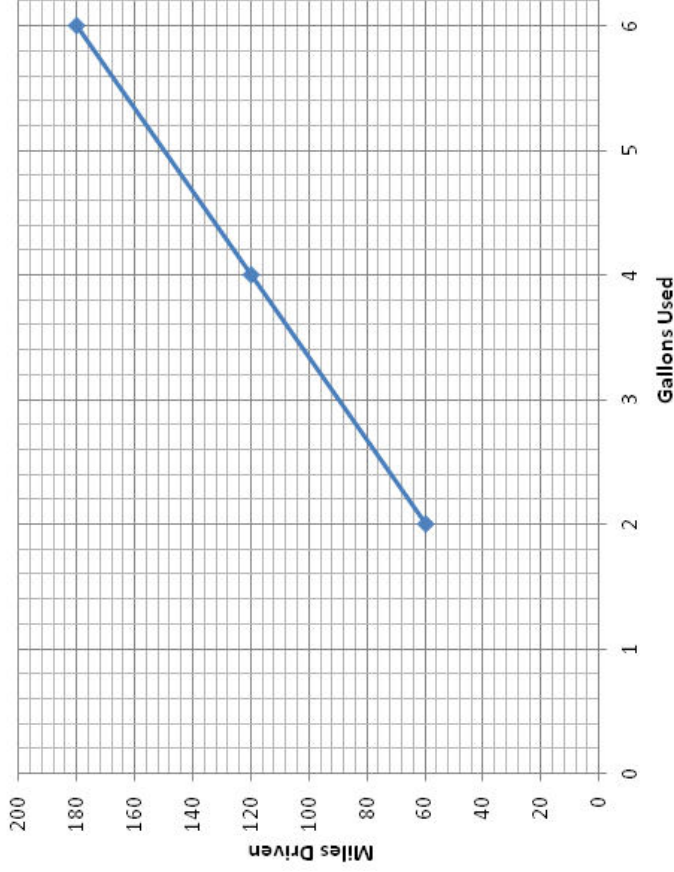


GLIMMER

The Glimmer is still in testing, but the first reports have told us that drivers were able to drive 484 miles on the eighteen-gallon fuel tank. What a deal!

AVENGER

The newest model of the Avenger is still in testing, but the following page from a test drive was released recently.



QUESTIONS: COMPARING MILEAGE

1. Which car gets the best gas mileage? How do you know?
2. Which car gets the lowest gas mileage? How do you know?
3. Rank the cars in order from best gas mileage to worst gas mileage.

EXTENSION:

You are planning a 450 mile road trip. Gas costs \$3.20 a gallon. If all the cars have an eighteen gallon tank, how much money would you save filling up the most efficient car compared to the least efficient car?

Create Your Own Story

Name _____

Date: _____ Period: _____

Story:

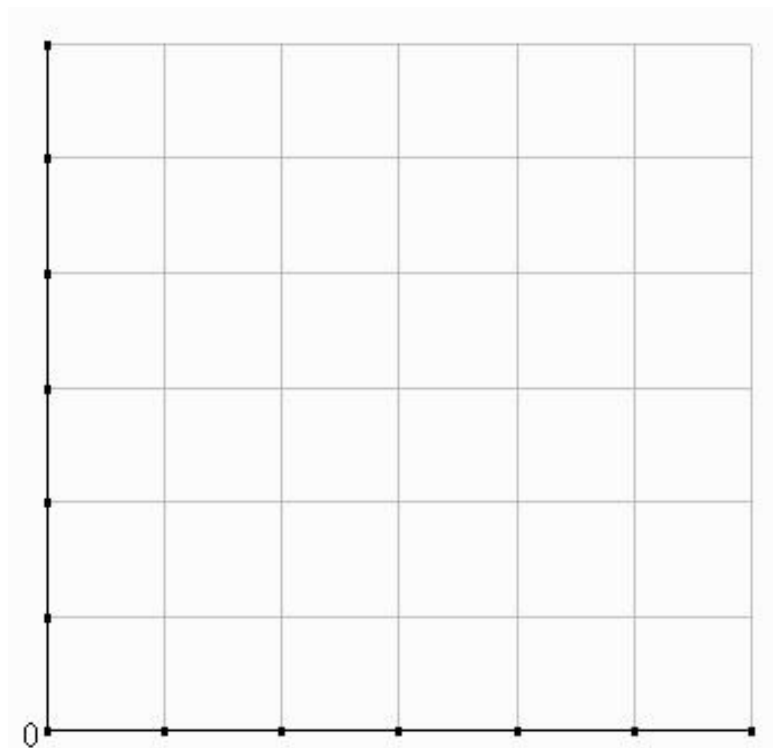
x	rule	y	(x , y)

Equation:

Additive or multiplicative?

In the story, the independent variable is

In the story, the dependent variable is

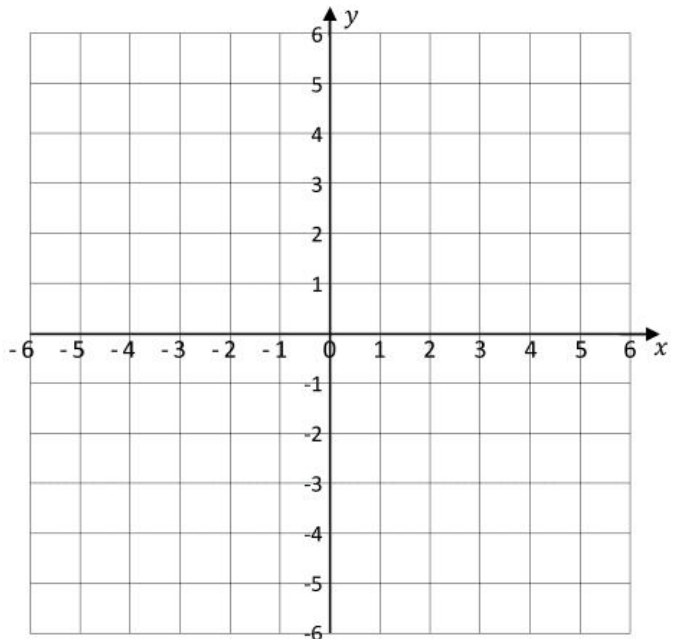
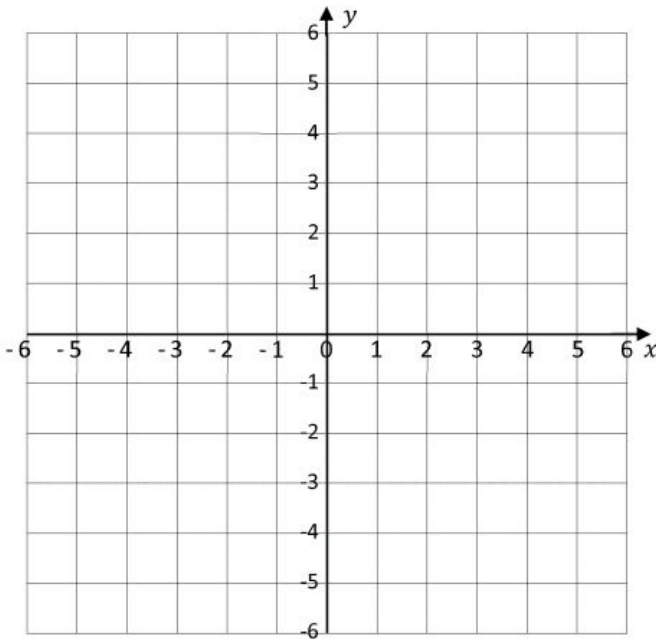
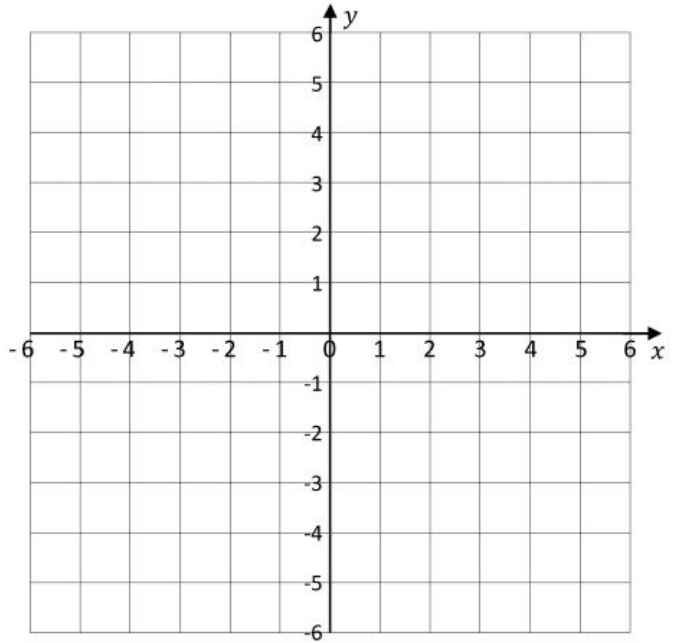
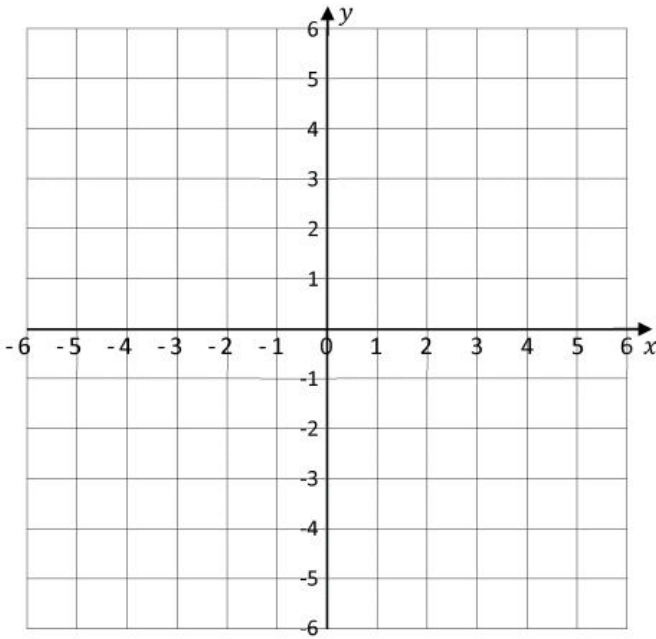


Name _____

Date _____



COORDINATE GRIDS



Name: _____ Period: _____

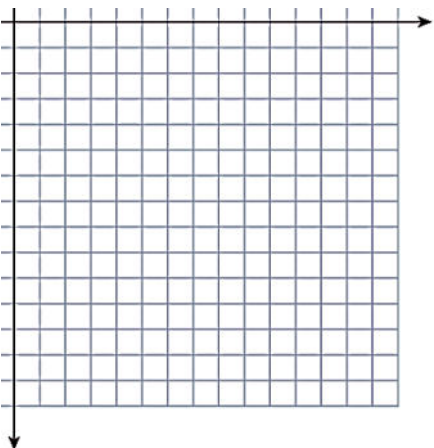
Lyn studies for his unit 8 exam for 2 hours each day. The total hours he has studied depends on the number of days.

Verbal

TABLE

Equation

Graph



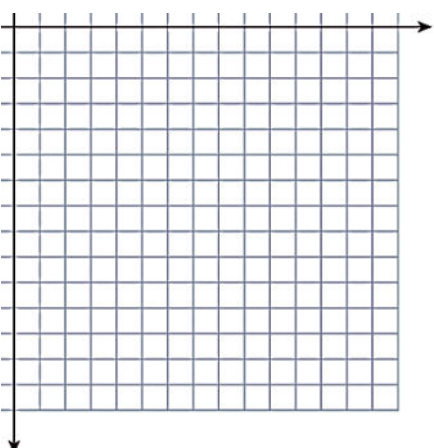
Syria has 3 boxes of Frooty Ringz cereal at home, and she buys some more at the store. The total number of boxes of Frooty Ringz Sarah will have when she gets home from the store depends on the number she buys.

Verbal

TABLE

Equation

Graph



Name: _____

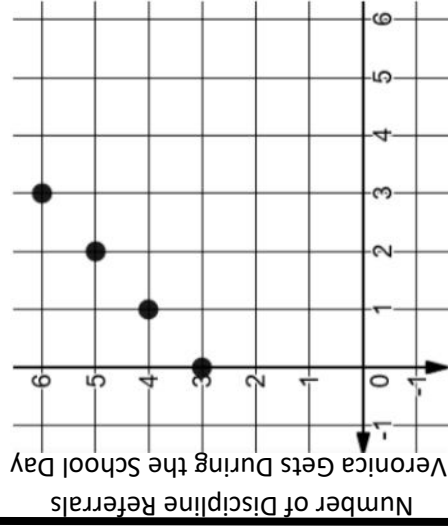
Period: _____

Verbal

TABLE

Equation

Graph



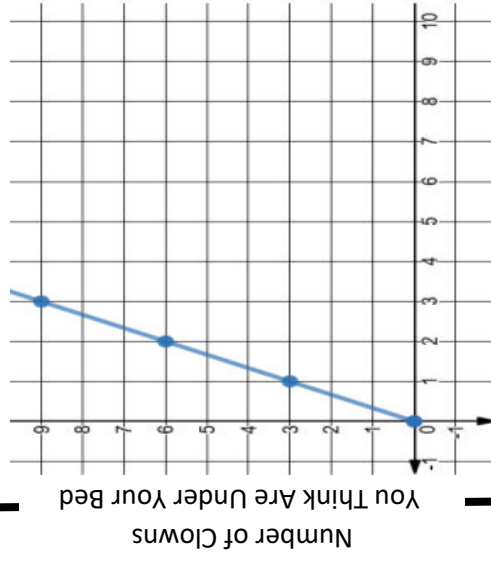
Number of Sticks of Gum
Veronica Chews During Classes

Verbal

TABLE

Equation

Graph



Number of Hours Past Bedtime You Stayed Up to Watch Horror Movies

Name: _____

Period: _____

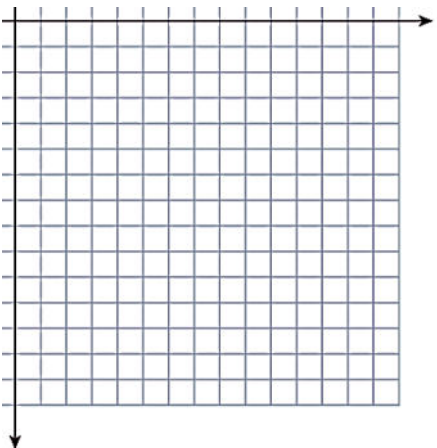
Verbal

TABLE

Equation

$$y = x - 1$$

Graph



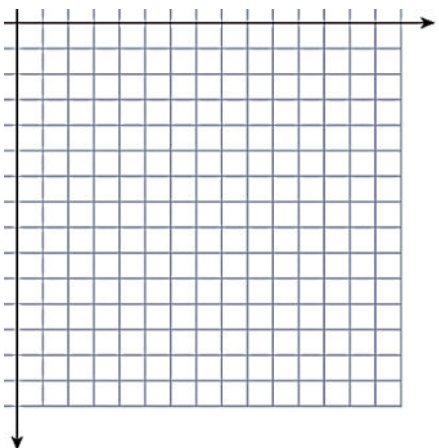
Verbal

TABLE

Equation

$$y = 2.5x$$

Graph



Name: _____

Period: _____

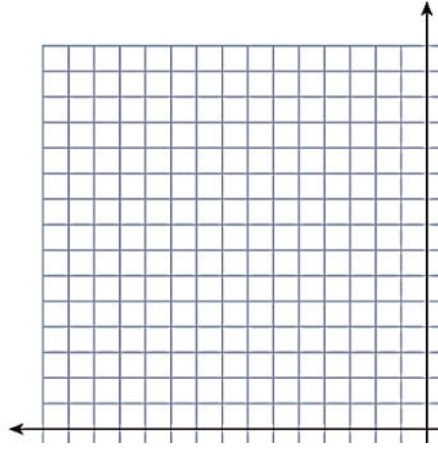
X	Y
2	2.5
3	3.5
5	5.5
8	8.5
10	10.5

Verbal

TABLE

Equation

Graph



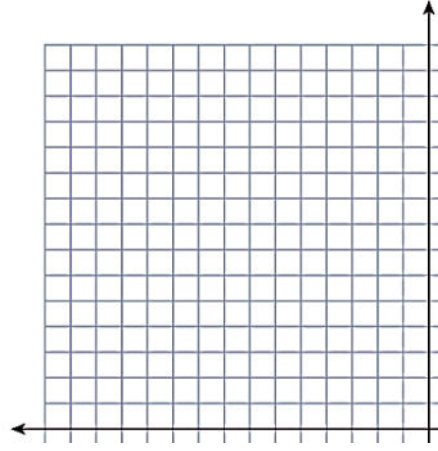
Verbal

TABLE

Equation

Graph

X	Y
1	5
3	15
4	20
7	35
9	45

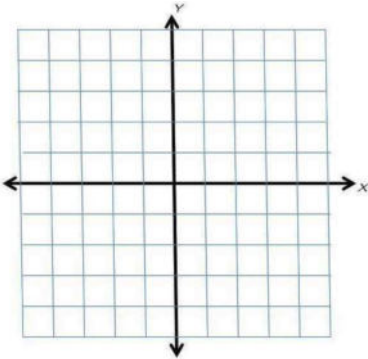


Tables, Equations, & Graphs

Complete the t-table for each equation. Plot the ordered pair on the coordinate plane and connect the points to make a line.

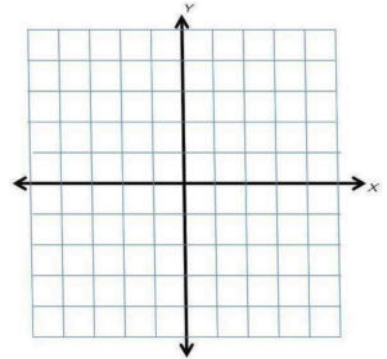
1. $y = x + 2$

x	y
-2	
-1	
0	
1	



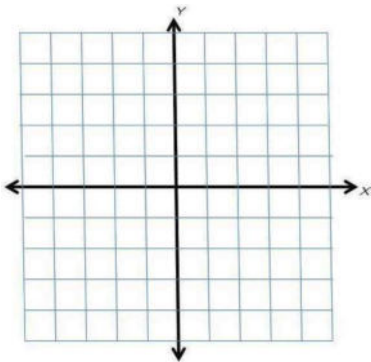
2. $y = x - 2$

x	y
-2	
-1	
0	
1	



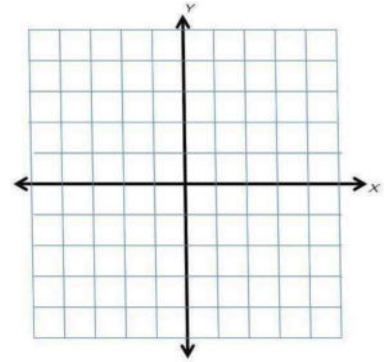
3. $y = 4x$

x	y
-1	
0	
1	



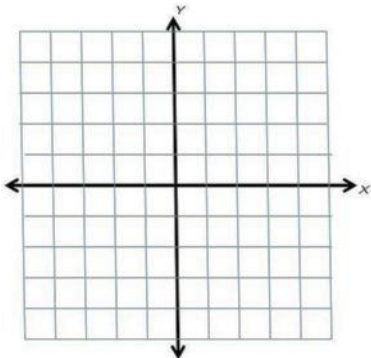
4. $y = -x$

x	y
-2	
-1	
1	
2	



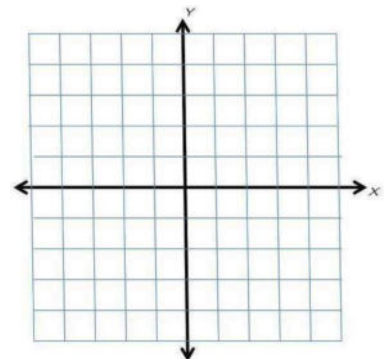
5. $y = x + 1$

x	y
-2	
-1	
0	
1	



6. $y = 0.5x$

x	y
-2	
-1	
0	
1	



One-Step Equation Word Problems

- 1) Lisa is cooking muffins. The recipe calls for 7 cups of sugar. She has already put in 2 cups. How many more cups does she need to put in?
- 2) At a restaurant, Mike and his three friends decided to divide the bill evenly. If each person paid \$13 then what was the total bill?
- 3) How many packages of diapers can you buy with \$40 if one package costs \$8?
- 4) Last Friday Trevon had \$29. Over the weekend he received some money for cleaning the attic. He now has \$41. How much money did he receive?
- 5) Last week Julia ran 30 miles more than Pranav. Julia ran 47 miles. How many miles did Pranav run?
- 6) How many boxes of envelopes can you buy with \$12 if one box costs \$3?
- 7) Amanda and her best friend found some money buried in a field. They split the money evenly, each getting \$24.28. How much money did they find?
- 8) Jenny wants to buy an MP3 player that costs \$30.98. How much change does she receive if she gives the cashier \$40?

9) Last Friday Adam had \$22.33. Over the weekend he received some money for cleaning the attic. He now has \$32. How much money did he receive?

10) After paying \$5.12 for a salad, Norachai has \$27.10. How much money did he have before buying the salad?

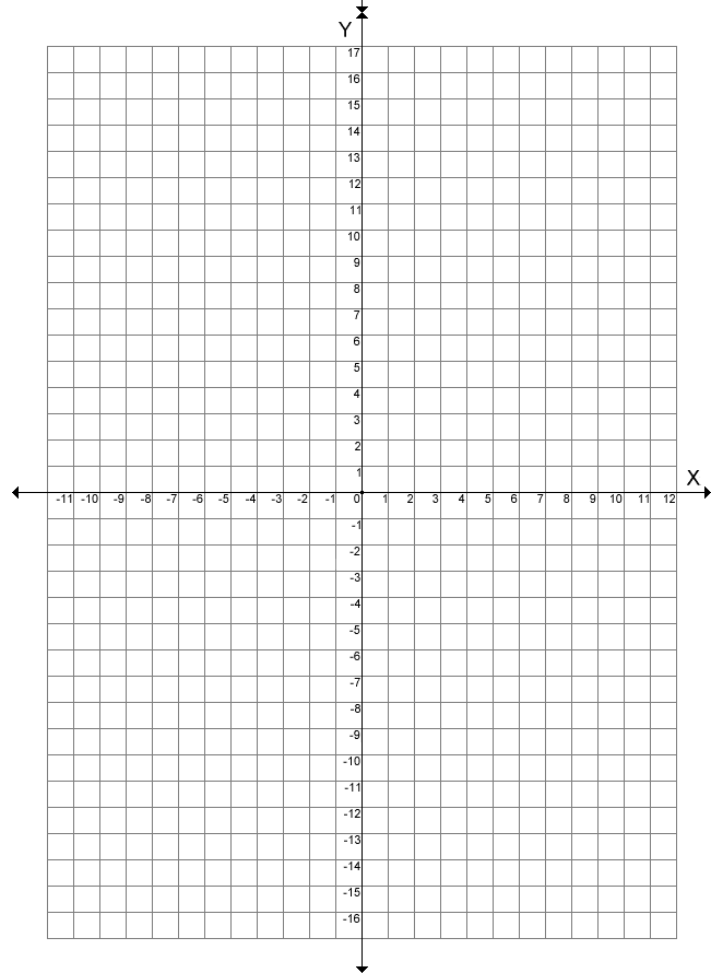
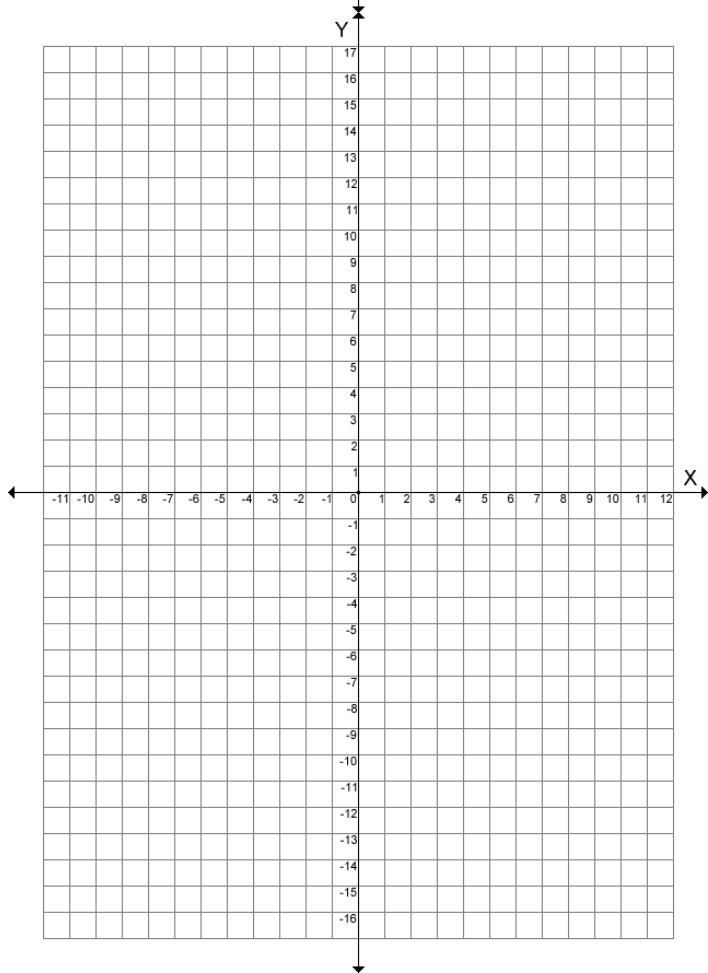
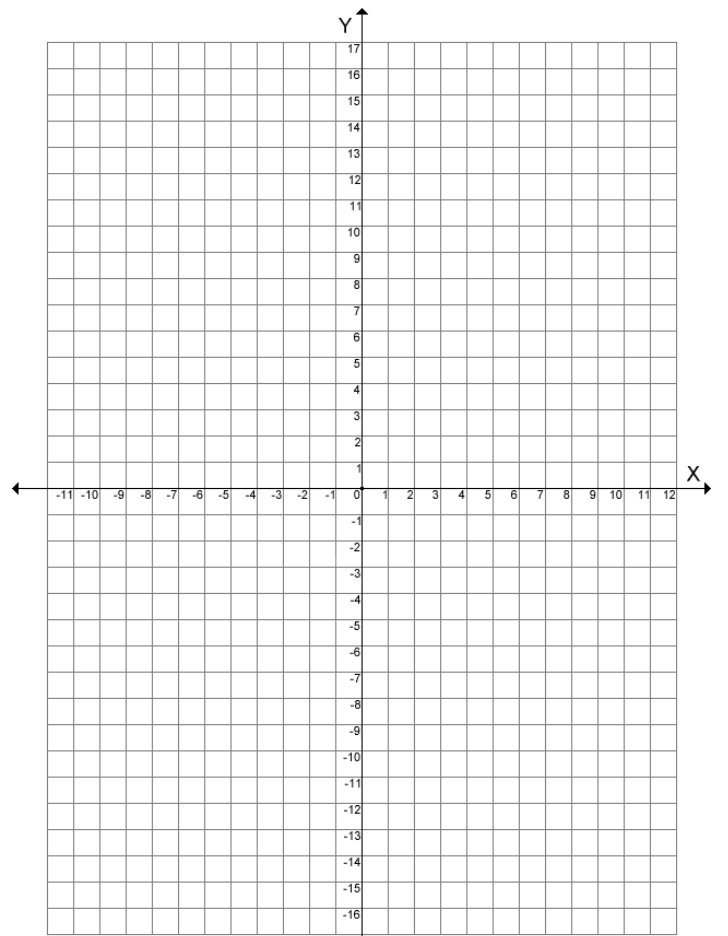
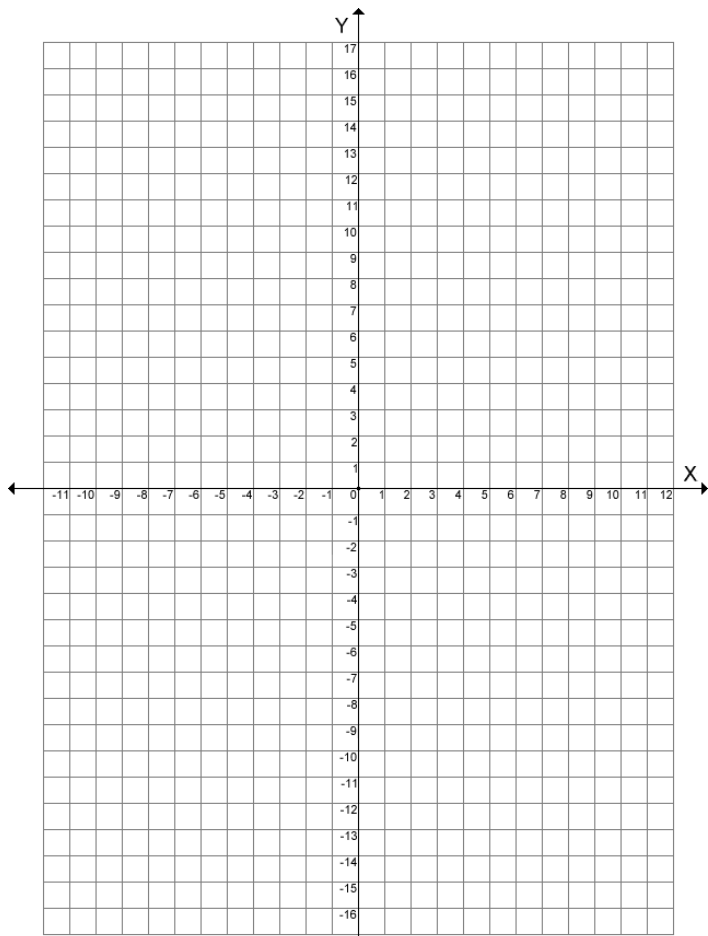
11) A recipe for cookies calls for $3\frac{1}{4}$ cups of sugar. Amy has already put in $3\frac{1}{9}$ cups.

How many more cups does she need to put in?

12) Your mother gave you \$13.32 with which to buy a present. This covered $\frac{3}{5}$ of the cost. How much did the present cost?

13) If the weight of a package is multiplied by $\frac{5}{7}$ the result is 40.5 pounds. Find the weight of the package.

14) A stray dog ate 12 of your muffins. That was $\frac{3}{10}$ of all of them! With how many did you start?



Multiple Representations Quiz

Solve the problems below. Be sure to show your thinking. ALL ANSWERS MUST BE WELL JUSTIFIED!

1. Grapes are priced at \$2.25 per pound. Which of the following equations best represents the cost, c , charged when a customer buys g pounds of grapes?

- A. $c = 2.25g$
- B. $c = g + 2.25$
- C. $g = c + 2.25$
- D. $g = 2.25c$

2. Which statement best describes the two tables below?

TABLE A

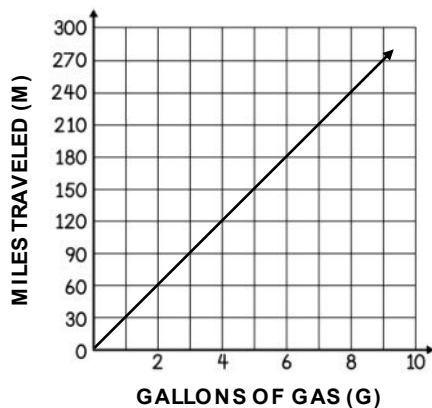
X	1	2	3	4
Y	2.5	5.5	8.5	11.5

TABLE B

X	3	4	6	9
Y	5.5	6.5	8.5	11.5

- A. Table A is a multiplicative relationship, where $y = 2.5x$.
- B. Table B is an additive relationship, where $y = x + 2.5$.
- C. Both answer A and answer B are correct.

3. Which equation best represents the relationship shown in the graph below? (BE CAREFUL! Make a table!)



- A. $m = 60g$
- B. $g = 30m$
- C. $g = 60m$
- D. $m = 30g$

4. The table below shows how much money Mrs. Broussard spends on her babysitter. Which equation best represents the relationship?

NUMBER OF HOURS (H)	AMOUNT EARNED (D)
2	18.00
3.5	31.50
5	45.00
7	63.00

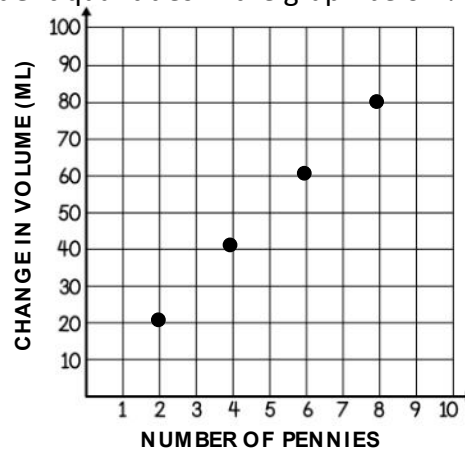
- A. $d = \frac{1}{9}h$
- B. $d = h + 16$
- C. $h = d + 9$
- D. $d = 9h$

5. The table shows how the total cost changes based on the number of milkshakes bought at Moo-Moo Milkshake Shake Shack. Which of the following best represents the **independent** quantities in the table?

- A. 2, 7.5, 3, 11.25
- B. 7.5, 11.25, 18.75, 30
- C. 2, 3, 5, 8
- D. 20, 30, 50, 80

NUMBER OF MILKSHAKES	TOTAL COST
2	7.50
3	11.25
5	18.75
8	30.00

6. Which of the following best represents the **dependent** quantities in the graph below?



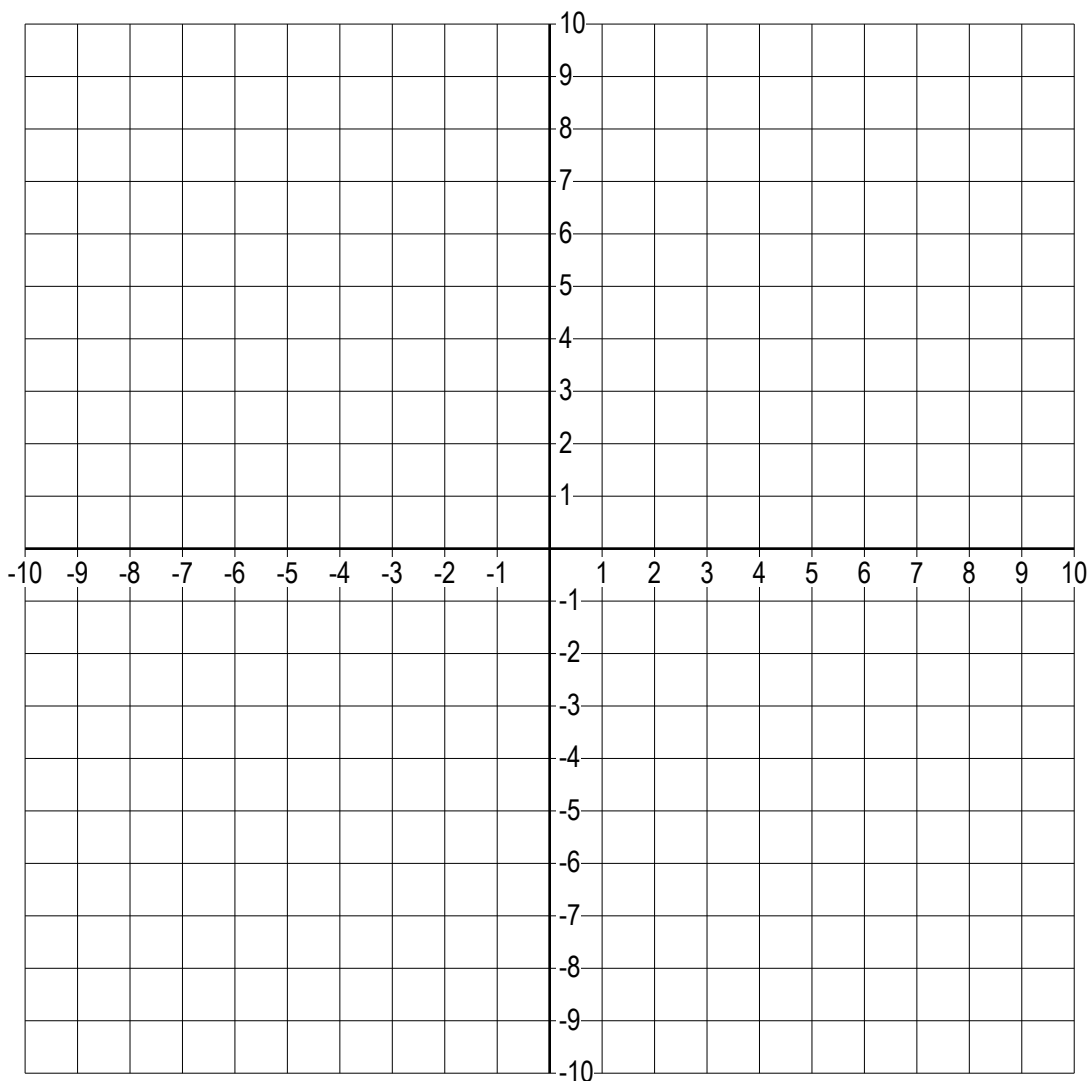
- A. 2, 20, 4, 40
- B. 2, 4, 6, 8
- C. 20, 40, 60, 80
- D. 10, 20, 30, 40, 50

Coordinate Picture

Name: _____ Date: _____



There is a picture hidden in this grid. Connect the points with lines to reveal it.



- Line 1:** $(-4, -1)$, $(-4, -4)$, $(-5, -6)$, $(-4, -9)$, $(-2, -9)$, $(-3, -6)$, $(-2, -5)$
Line 2: $(-7, 2)$, $(-9, -2)$, $(-8, -5)$, $(-8, -7)$, $(-7, -10)$, $(-5, -10)$, $(-6, -7)$,
 $(-4, -4)$, $(-1, -5)$ **Line 3:** $(0, -2)$, $(-1, -3)$, $(-1, -6)$, $(0, -10)$, $(2, -10)$,
 $(1, -7)$, $(2, -5)$, $(4, -5)$, $(6, -3)$, $(8, -1)$ **Line 4:** $(6, 2)$, $(6, 3)$, $(7, 2)$,
 $(6, 2)$ **Line 5:** $(7, 0)$, $(5, -2)$, $(3, 0)$ **Line 6:** $(-8, 0)$, $(-10, 3)$, $(-10, 6)$,
 $(-9, 8)$, $(-8, 4)$, $(-6, 2)$, $(-1, 2)$, $(1, 3)$ **Line 7:** $(3, 2)$, $(4, 3)$, $(4, 2)$, $(3, 2)$
Line 8: $(4, -1)$, $(6, 1)$, $(4, 1)$, $(6, -1)$ **Line 9:** $(0, 0)$, $(2, 6)$, $(0, 8)$, $(3, 9)$,
 $(3, 6)$, $(7, 6)$, $(7, 9)$, $(10, 8)$, $(8, 6)$, $(10, 0)$, $(5, -2)$, $(0, 0)$ **Line 10:**
 $(2, -5)$, $(3, -9)$, $(5, -9)$, $(4, -6)$, $(5, -4)$

Name : _____

Score : _____

Teacher : _____

Date : _____

Complete the function table for each equation.

1) $y = 6x + 2$

x	y
7	
-7	
-4	
-1	
1	

5) $y = 9x + 4$

x	y
1	
-3	
9	
-9	
6	

9) $y = -\frac{1}{4}x + 6$

x	y
-6	
8	
-8	
-3	
-1	

2) $y = \frac{1}{8}x - 7$

x	y
-5	
-7	
-6	
7	
2	

6) $y = -6x + 9$

x	y
-1	
-7	
8	
2	
6	

10) $y = -\frac{1}{3}x - 3$

x	y
-2	
-1	
-8	
-5	
4	

3) $y = \frac{1}{4}x - 9$

x	y
8	
4	
2	
1	
-9	

7) $y = 3x + 8$

x	y
-7	
9	
-3	
-8	
-5	

11) $y = -\frac{1}{5}x - 6$

x	y
-6	
3	
-8	
9	
-7	

4) $y = -7x + 7$

x	y
7	
8	
4	
3	
-6	

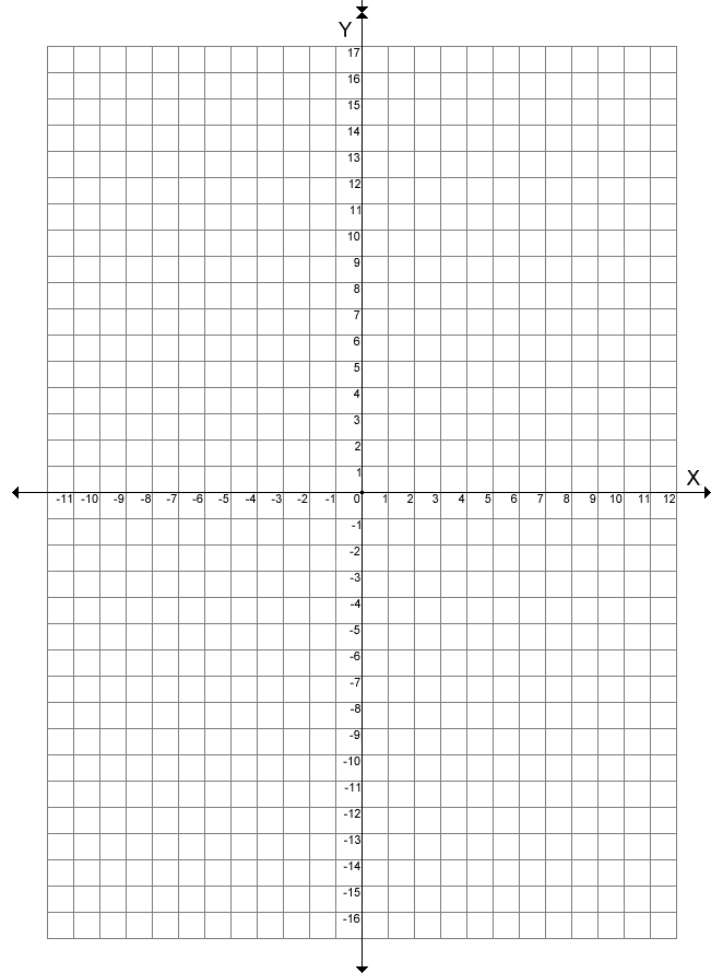
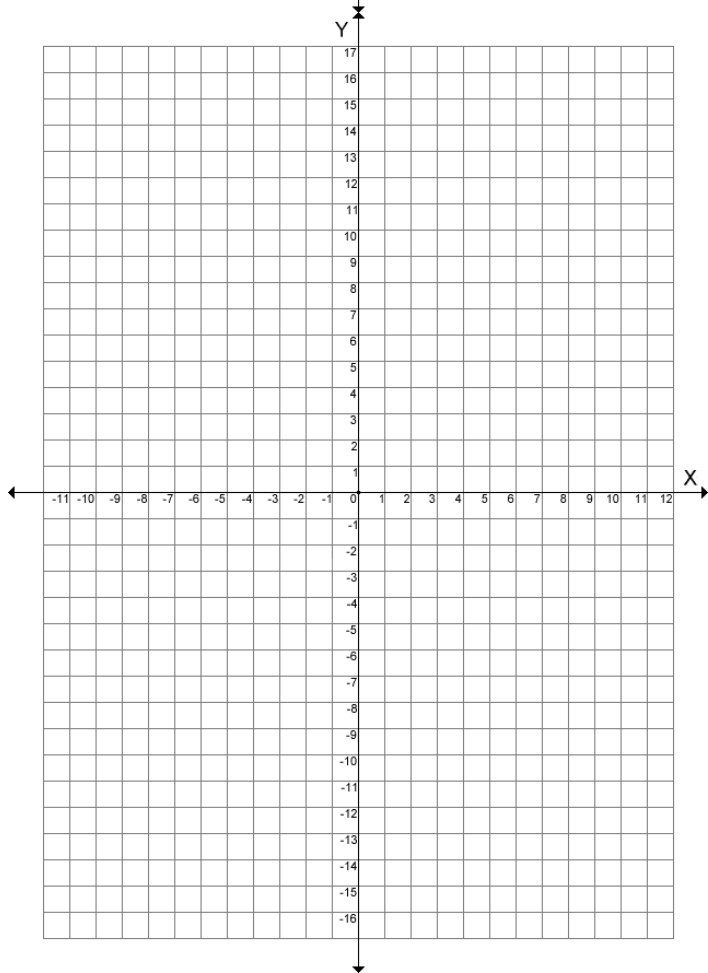
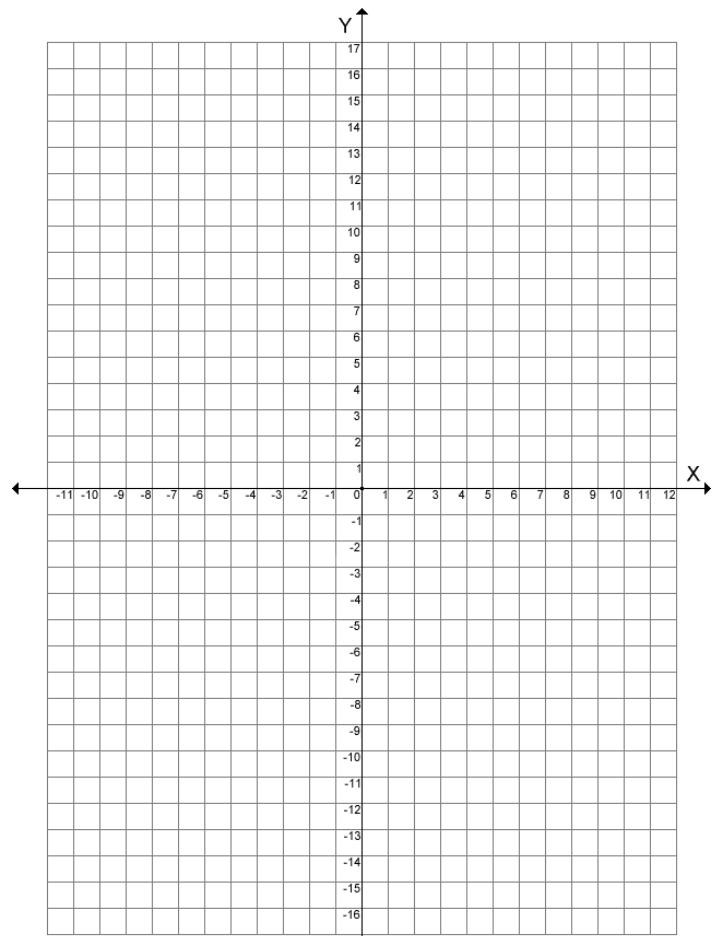
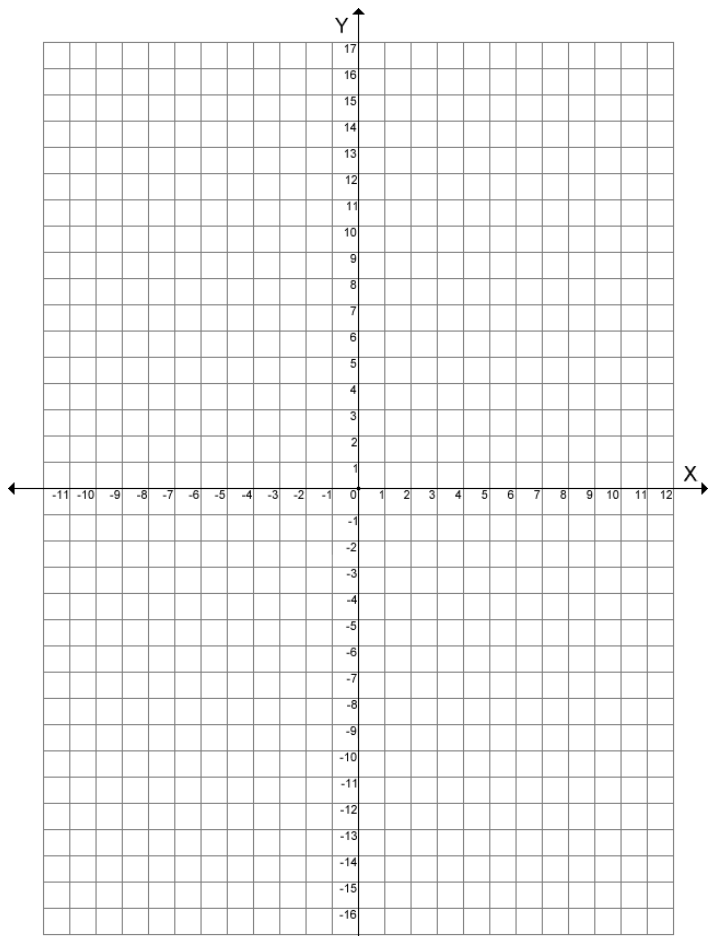
8) $y = 5x - 2$

x	y
-9	
6	
5	
3	
-8	

12) $y = \frac{1}{2}x - 5$

x	y
-1	
6	
9	
-7	
-5	





Comparing Functions

Name: _____

Date: _____ Period: _____

8.F.2: Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).

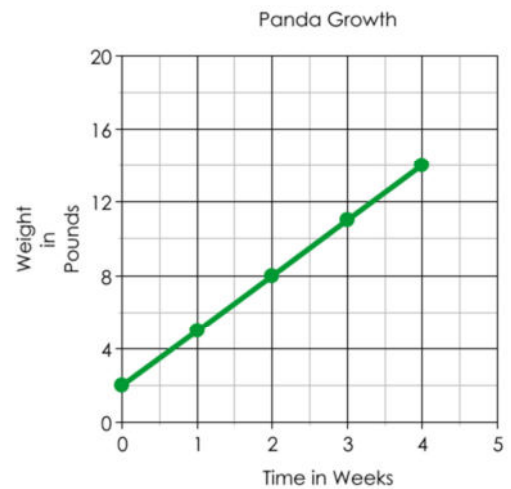
Read each situation, then answer the questions by analyzing and comparing the different linear situations.

1. The Metropolis Zoo recently celebrated the birth of two new baby pandas!

Mochi the panda cub has been measured and weighed each week since she was born.

Weeks	Weight
0	1
1	5
2	9
3	13

Mochi's brother is **Kappa**. His weight has been charted on the graph below.



- Which panda was heavier when they were born?
- Which panda is growing faster?
- Which panda will weigh more at five weeks?

2. Two contestants on Biggest Loser are Valerie and Oscar. Their weight loss progress is shown below.

Valerie's weight loss is shown by this function, where W is her weight in pounds and t is the time in weeks.

$$W = 235 - 2.5t$$

Oscar's weight loss is tracked in the table below.

Weeks	0	2	5	6
Weight	247	243	237	235

- Who weighed more at the beginning of the show?
- Who is losing weight faster?

3. Mr. Rich recently planted a crop of money trees in his garden.

A.

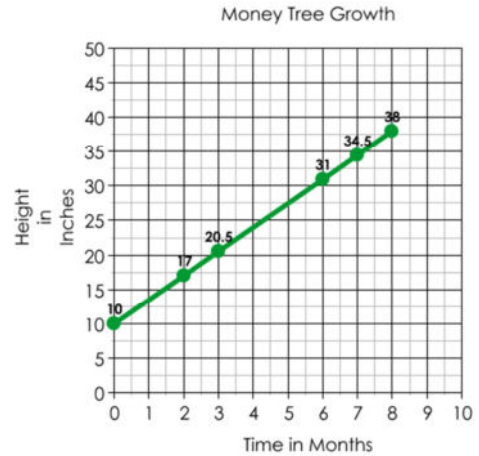
The first tree was five inches tall when planted. It has grown four inches every month since being planted.

B.

Measurements were taken of the second tree and given below:

Months	0	2	3	5
Height	3	12	16.5	25.5

C.



- Which of the trees is growing the fastest?
- Which tree was the tallest when it was first planted?
- Challenge: Which tree is the tallest after 6 months?

4. Tony is the best pizza deliveryman in the city. He has been offered jobs by all the best pizza places.

Bombinoes' Pizza is offering \$56 per shift and \$2.50 in commission for each pizza delivered.

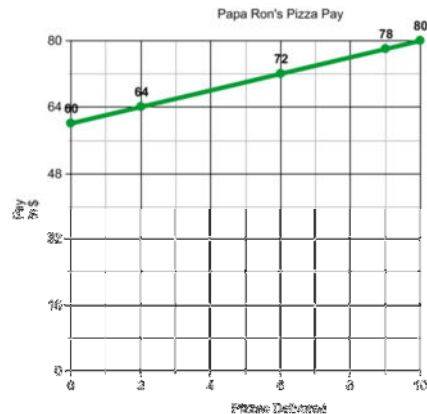
Little Squeezer's showed Tony a table of salaries.

Pizzas	0	2	4	10
Salary	48	54	60	78

Pizza Tent has given Tony his pay options in the following function. S represents Tony's salary, and p represents the number of pizzas he delivers.

$$S = 2.75p + 52$$

Papa Ron's made their offer in the form of this graph.



- Which company pays the best pay per shift?
- Which company pays the most per pizza?
- Challenge: If Tony is going to deliver at least 20 pizzas every night, which company should he work for?

Goney

Linear Word Problems

1. Oberon Cell Phone Company advertises service for 10 cents per minute plus a monthly fee of \$35.00.
 - a. Write an equation that relates the total cost of the phone bill, y , to the number of minutes you talk, x .
 - b. Graph the equation on a .

X		Y	(x,y)
50			
100			
150			
200			
250			

- c. If Parker's phone bill for October was \$87.50, find the number of minutes he talked.

2. Quinn was shopping at a used book sale where each book sold for \$7. Quinn bought a poster for that cost \$3.10.
 - a. Write an equation that relates the total cost of his bill, y , to the number of books he buys, x .
 - b. Graph the equation

X		Y	(x,y)
5			
10			
15			
20			
25			

- c. Estimate the number of books he could buy with \$74.
 - d. If Quinn spends \$45.10, how many books did he buy?

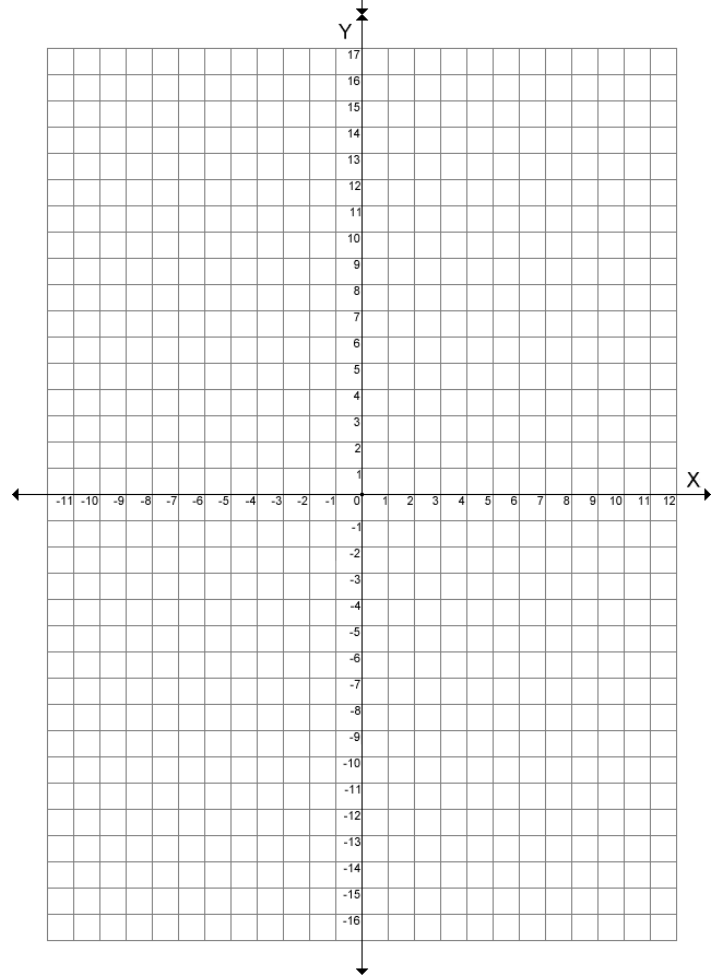
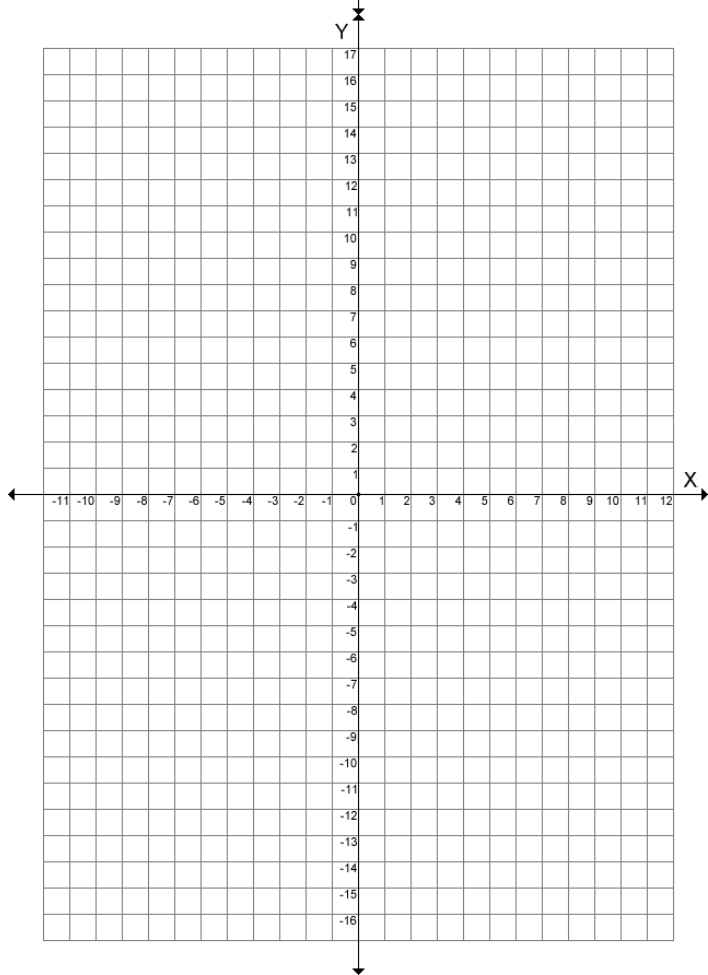
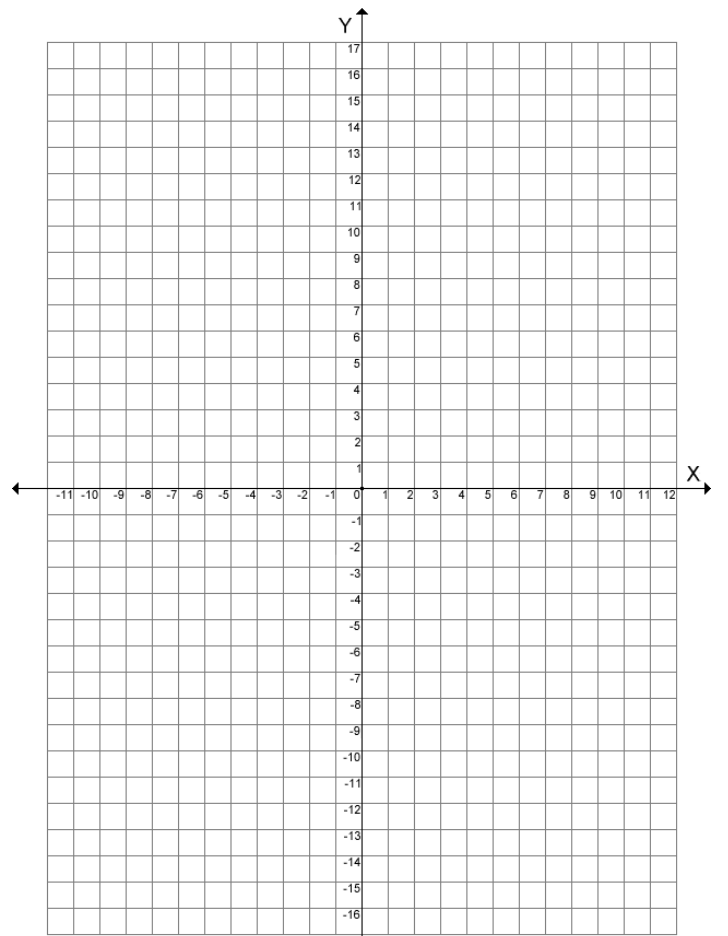
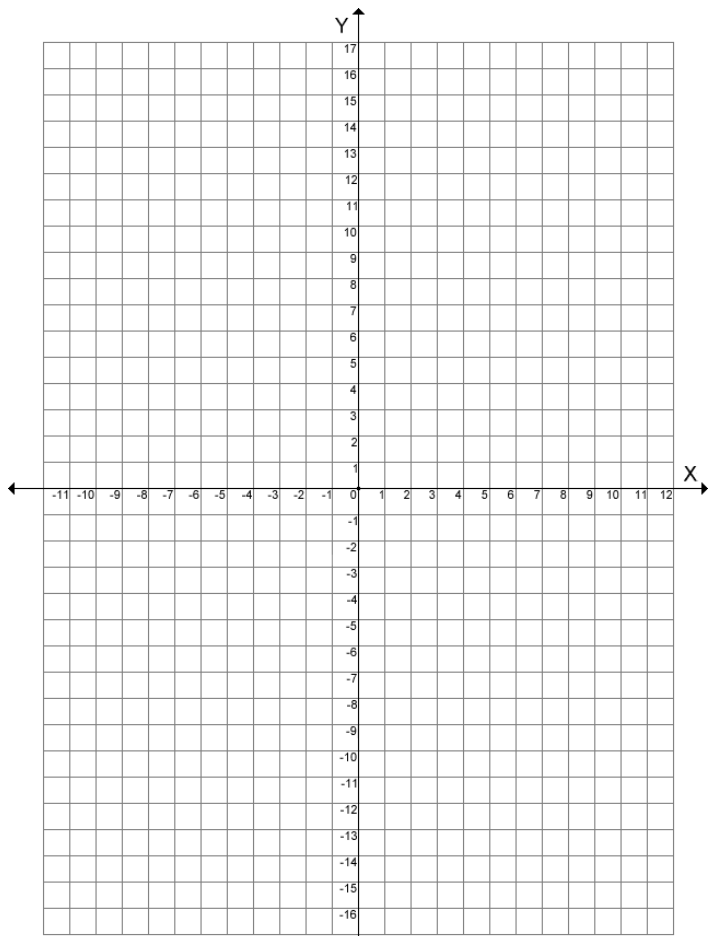
3. Rachel belongs to a local gym. She pays \$15 per month and a one time registration fee of \$75.
- Write an equation that relates the total amount she spends on her membership, y , to the number of months she is a member, x .
 - Graph the equation.

X		Y	(x,y)
2			
4			
6			
8			
10			

- Estimate how many months she can be a member for \$165.
 - If Rachel spent \$330 on her membership, how many months would she be a member?
4. Yamir went to the store to buy one bag of dirt for 2 dollars and some tulips. The tulips sold for 35 cents a bulb.
- Write an equation shows the relationship between his total bill, y , to the number of bulbs of tulips he buys, x .
 - Graph the equation

X		Y	(x,y)
10			
20			
30			
40			
50			

- If he spent \$12.24, how many bulbs did he buy?



Rolling Rules

Name _____

Roll a number cube to fill in the independent variable (x) values.
Then, use the rule to complete the dependent variable (y) columns.
If you roll a number that you already have, just roll again.



Independent Variable (x)	Dependent Variable (y)
(1 st Roll)	
(2 nd Roll)	
(3 rd Roll)	
(4 th Roll)	
(5 th Roll)	

Rule: $y = x + 8$

Independent Variable (x)	Dependent Variable (y)
(1 st Roll)	
(2 nd Roll)	
(3 rd Roll)	
(4 th Roll)	
(5 th Roll)	

Rule: $y = 7x$



Independent Variable (x)	Dependent Variable (y)
(1 st Roll)	
(2 nd Roll)	
(3 rd Roll)	
(4 th Roll)	
(5 th Roll)	

Rule: $y = \frac{x}{2}$



Independent Variable (x)	Dependent Variable (y)
(1 st Roll)	
(2 nd Roll)	
(3 rd Roll)	
(4 th Roll)	
(5 th Roll)	

Rule: $y = 20 - x$

Roll a number cube to complete each rule.
 Then, use the rule to complete each dependent variable (y) column.

Independent Variable (x)	Dependent Variable (y)
1	
2	
3	
4	
5	

Rule: $y = (\text{1st Roll} + \text{2nd Roll})x$

Independent Variable (x)	Dependent Variable (y)
2	
3	
4	
5	
6	

Rule: $y = x^{\text{to the power of 1st Roll}}$

Independent Variable (x)	Dependent Variable (y)
30	
60	
90	
120	
150	

Rule: $y = x \div \text{1st Roll}$

Independent Variable (x)	Dependent Variable (y)
12	
22	
32	
42	
52	

Rule: $y = x - \text{1st Roll}$

Finished early? 

Fill in the independent variable (x) values, with numbers of your choice.
 Then, write a rule for your neighbor to use, so they can complete the table.

x					
y					

Rule: $y =$

Exam 5.1 Review

6.6A/B/C -

Use the following story to complete # 1-7.

Walter has a lawn mowing business. He charges \$25 for each lawn he mows.

3. Create a table.

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4. List the independent quantities.

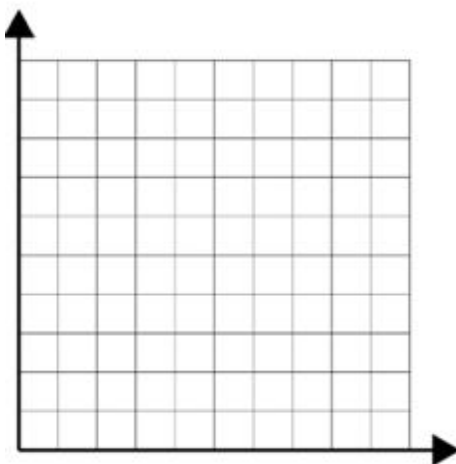
List the dependent quantities.

5. Write an equation to represent the data in the table.

$y =$

6. Is the relationship from the table additive or multiplicative?

7. Graph it.



8. Briana uses the table below to calculate the cost for her babysitting services.

Number of hours (h)	Cost (c)
2	\$17.00
3	\$25.50
4	\$34.00
5	\$42.50

Which equation correctly represents the relationship between the independent and dependent quantities?

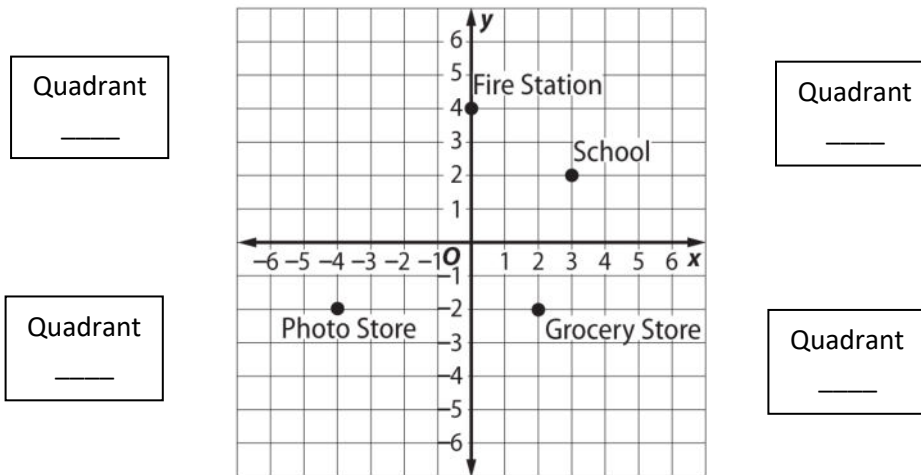
A. $c = h + 8.5$

B. $h = 8.5c$

C. $c = 8.5h$

D. $h = 8.5 + c$

9. Identify the ordered pair for each location below, THEN label all 4 quadrants, the origin, the x-axis, and the y-axis. Fire Station (,) Photo Store (,) School (,) Grocery Store (,)



10. Plot these points on the graph above:

Library (6, 5.5) Dog Park (-2 1/2, 3) CVS (-6, 1 1/2) Basketball Courts (4.5, -5.5)

11. Which quadrant are the following data points? Quadrant I, II, III or IV?

(5.9, -3.99) _____ (-8.5, -0.33) _____ (62.05, 7.5) _____ (-1, 9) _____

<p>Verbal</p> <p>Jared bought a pack of mechanical pencils for \$9. Each package contained 6 pencils. How much will he spend if he needs to buy 30 pencils?</p>	<p style="text-align: right;">Table</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: yellow; width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> </tr> <tr> <td style="background-color: yellow;"></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>										
<p>Equation</p>	<p style="text-align: right;">Graph</p>										