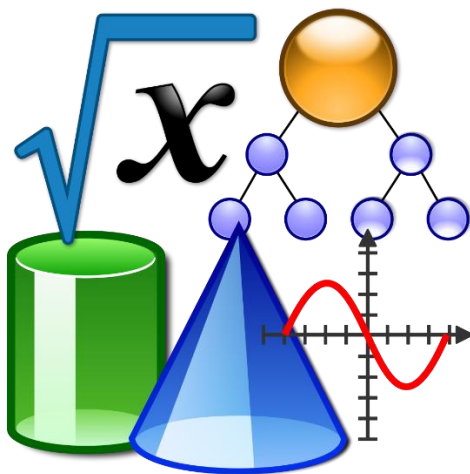


NPS Learning in Place

MATH 7



Name: _____ School: _____ Teacher: _____

May 18 – June 5

Week 1	<ul style="list-style-type: none">• Equations
Week 2	<ul style="list-style-type: none">• Proportional Relationships
Week 3	<ul style="list-style-type: none">• Additive and Proportional Relationships

Day 1 Equation Notes

Solving Equations

Vocabulary

Constant: The number by itself.

Coefficient: Number attached to the variable

THINGS TO KNOW:

- An equation is a mathematical sentence that states that two expressions are equal. In order to maintain equality, one can do the same operation to both sides.
- Concrete materials can be used to represent an equation. Be sure to look at the key to determine what the objects represent. Exp:

Key				
<table style="display: inline-table; border: 1px solid black; vertical-align: middle;"> <tr> <td style="padding: 2px;">1</td> <td style="padding: 2px;">-1</td> </tr> <tr> <td style="padding: 2px;">x</td> <td style="padding: 2px;">-x</td> </tr> </table>	1	-1	x	-x
1	-1			
x	-x			

=

$-2x + 1 = -3$

- When solving an equation, you are un-doing the order of operations. You must perform the inverse operations in reverse order to arrive at a solution.

HINTS/TRICKY FACTS

- When translating algebraic expressions and equations, remember:
 - Less than and more than reverses the order
 - Sum of and difference of indicates the need for parenthesis
 - Twice means times 2, squared means to the power of 2
- When solving an equation, you can use the substitution property of equality to see if your solution is correct. If you are stuck, you can always plug in your answer choices.

****Hint** When solving equations, start by “undoing” the constant first, then the coefficient (undoing means doing the opposite operation) unless your denominator is over the whole side**

1) $2x + 5 = 11$

$$\begin{array}{r} 2x + 5 = 11 \\ \underline{-5 \quad -5} \\ 2x = 6 \\ \underline{\div 2 \quad \div 2} \\ x = 3 \end{array}$$

2) $\frac{x}{4} - 2 = 5$

$$\begin{array}{r} \frac{x}{4} - 2 = 5 \\ \quad \quad +2 \quad +2 \\ (4) \frac{x}{4} = 7(4) \\ x = 28 \end{array}$$

3) $\frac{2}{3}n = 6$

$$\frac{3}{2} \cdot \frac{2}{3}n = \frac{3}{2} \cdot \frac{6}{1}$$

$$n = 9$$

4)

$\frac{x+5}{2} = 10$	
$\left(\frac{x+5}{2}\right)2 = (10)2$	<i>multiply each side by 2</i>
$x+5 = 20$	<i>the 2's on the left cancel</i>
$x+5-5 = 20-5$	<i>subtract 5 from each side</i>
$x = 15$	<i>and simplify</i>

5)

$-3x - 7 = -12$	
$-3x - 7 + 7 = -12 + 7$	<i>add 7 to each side</i>
$-3x = -5$	<i>simplify</i>
$\frac{-3x}{-3} = \frac{-5}{-3}$	<i>divide each side by -3</i>
$x = \frac{5}{3}$	<i>simplify</i>

Day 1 Equations Practice

Question	Show all work
<p>What is the solution to</p> $\frac{x+4}{3} = 19$	
<p>Maria called her sister long distance on Wednesday. The first 5 minutes cost \$3, and each minute after that costs \$0.25. How much did it cost if they talked for 15 minutes?</p>	
<p>Use the model to answer the question.</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 20px;"> </div> <div style="border: 1px solid black; padding: 5px; margin-right: 20px;"> <p>Ke</p> <p> = x = 1</p> <p> = -x = -1</p> </div> </div>	
<p>Aubrey's scarf is 4 inches more than half the length of Tyrone's scarf. Aubrey's scarf is 34 inches long. How long is Tyrone's scarf?</p>	
<p>What is the solution to</p> $-\frac{2}{3}x - 4 = -10$	
<p>Using the given key and equation mat, represent and solve the following linear equation algebraically.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 10px;"> <div style="text-align: center;"> <p>Key:</p> <div style="border: 1px solid black; padding: 5px; display: flex; flex-wrap: wrap;"> <div style="margin-right: 10px;"> = 1</div> <div style="margin-right: 10px;"> = -1</div> <div style="margin-right: 10px;"> = x</div> <div> = -x</div> </div> </div> <div style="text-align: center;"> <p>$10 = 4 - 3x$</p> <p>Equation Mat</p> <div style="display: flex; align-items: center; justify-content: center; gap: 20px;"> <div style="border: 1px solid black; width: 150px; height: 80px;"></div> <div style="font-size: 2em;">=</div> <div style="border: 1px solid black; width: 150px; height: 80px;"></div> </div> </div> </div>	

Day 2- Solving Two-step Equations Practice

Directions: Show all of your work!!

1) $-9 + 5y = 41$

2) $10 + 3v = 25$

3) $-8 - 2x = -16$

4) $-4 + 2k = 16$

5) $-h + 14 = -22$

6) $-9 - 3j = -14$

7) $-10 - p = 26$

8) $10 - 5n = 0$

9) $-1 - 4h = 9$

10) $\frac{p+10}{-3} = 25$

11) $\frac{j+8}{-3} = -4$

12) $\frac{x-6}{-3} = 6$

13) $-4 + \frac{v}{-3} = 4$

14) $14 = -7 + \frac{p}{6}$

15) $-14 + \frac{p}{-2} = 8$

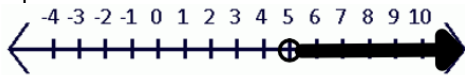
Day 2-Translating verbal to Algebraic Notes and Practice

Add	Subtract	Multiply	Divide
More than Increased by Sum Plus Greater than	Minus Less Than Subtracted From Diminished Difference Take away Less	Times Double Triple Twice Of Product	Quotient Half Split Divided by
<p>1 Translate the following expressions “Eleven times the sum of a number and five”</p>		Answer:	
<p>2. Marjorie bought 24 bottles of juice. Each day she opens and drinks 2 of these bottles of juice. Which of the following best represents the number of unopened bottles of juice Marjorie has at the end of d days?</p>		Answer:	
<p>3. Translate the following algebraic equation $3g - 12 = 14$ using less than</p>		Answer:	
<p>4. Translate the following algebraic expression $n^2 + (-22)$</p>		Answer:	
<p>5. Which of the following is the algebraic form for the verbal statement shown? “13 less than the product of 4 and a number, n, is 5”</p> <p>A $\frac{n}{4} - 13 = 5$ B $4n - 13 = 5$</p> <p>C $13 - 4n = 5$ D $4(n - 13) = 5$</p>			

Day 3-Solving Inequalities Notes

THINGS TO KNOW:

- The solution is the set of all numbers that make the inequality true. It is infinite.
- You can represent the solution to an inequality on a number line.
Exp: $x > 5$



- When solving an inequality, you are un-doing the order of operations. You must perform the inverse operations in reverse order to arrive at a solution.
- The **Multiplication and Division Property of Inequality** states if you multiply or divide by a negative number, you must reverse the direction of the inequality symbol.
Exp: $-2x < 8$ requires you divide both sides by -2 so $x > -4$.

HINTS/TRICKY FACTS

- When reading an inequality, always read from the side of the variable.
Exp: $7 > x$ read from the side of the variable is "x" is less than 7.
 $7 > x$ is the same as $x < 7$
- When graphing:
 - $>$ and $<$ open circle
 - \geq and \leq closed circle
- In word problems think about what the numbers in the solution set would be.
Remember there is an infinite number of solutions.
Exp. If $x > 3$ is your solution set then 3 is **not** a solution but 4, 5, 6...**are** solutions.

1.

$$\begin{array}{r} b + 4 < 13 \\ -3 \quad -4 \quad -4 \\ \hline b < 9 \\ -3 \quad -3 \\ \hline b > -27 \end{array}$$

2. Alex sells books online. She makes a flat profit of \$2.00 per book, but she needs to pay \$4.00 per day to Paypal for using the app on her website. How many books does she need to sell to make at least \$120.00 per day?

$$\begin{array}{r} 2b + 4 \geq 120 \\ +4 \quad +4 \\ \hline 2b \geq 124 \\ \frac{2b}{2} \geq \frac{124}{2} \\ b \geq 62 \end{array}$$

3.

$$\begin{array}{r} \frac{z}{3} - 9 < -7 \\ +9 \quad +9 \\ \hline \frac{z}{3} < 2 \\ \times 3 \quad \times 3 \\ \hline z < 6 \end{array}$$

4.

$\frac{z+2}{-3} \leq 6$	
$-3\left(\frac{z+2}{-3}\right) \leq -3(6)$	<i>multiply each side by -3</i>
$z + 2 \geq -18$	<i>switch the sign since we multiplied by -3</i>
$z + 2 - 2 \geq -18 - 2$	<i>subtract 2 from each side</i>
$z \geq -20$	<i>simplify</i>

We switched the sign in the second step because we multiplied by a negative number.

5.

$$2x + 4 \geq 24$$

A number line from 3 to 13. A closed circle is drawn at 10, and a thick red arrow points to the right from this circle, indicating the solution set $x \geq 10$.

$$\begin{array}{r} 2x + 4 \geq 24 \\ -4 \quad -4 \\ \hline 2x \geq 20 \\ \frac{2x}{2} \geq \frac{20}{2} \\ x \geq 10 \end{array}$$

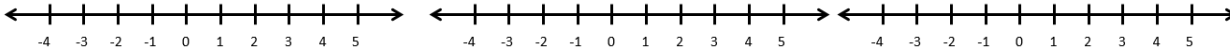
Day 3-Solving Inequalities Practice

1. Solve the following inequalities and graph the solutions on the number lines provided.

$$-3x < 9$$

$$-5a - 7 \leq 12$$

$$5 \leq -3w + 14$$



2. Select ALL the values of the set of x that makes the following true?

$$-6 > -4x - 18$$

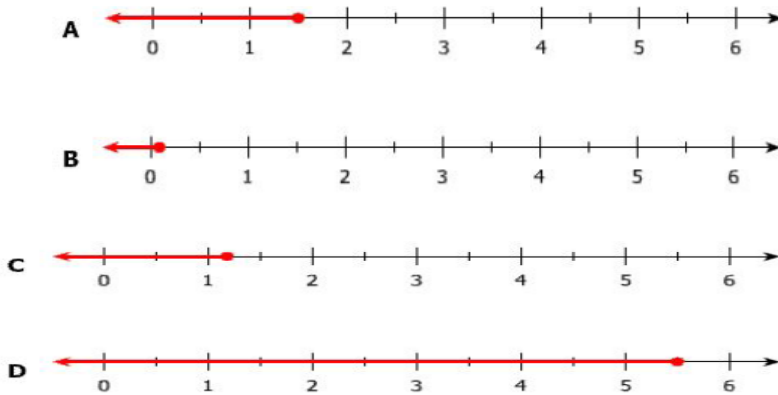
- A** 3 **B** -5 **C** -10 **D** -1 **E** -3

3. What is the solution to this inequality?

$$1.6 \geq 0.8x + 4$$

- A** $x \geq -3$ **B** $x \leq -3$ **C** $x \geq 7$ **D** $x \leq 7$

4. Which graph best represents the solution to $\frac{7}{8} \geq \frac{1}{4}x + \frac{1}{2}$?



5. Complete the solution set for the inequalities using one of the symbols and one of the numbers from the choices shown.

$$-4n < 16$$

n		
	>	4
	<	-4
		64
		-64

$$-30 > 6y$$

	y
5	>
-5	<
180	
-180	

6. Select all of the characteristics of the graph for $-x \leq -9$.

Circle is open	Circle is closed	Graph shaded to the right of the circle	Graph shaded to the left of the circle
----------------	------------------	---	--

7. Which could be used to represent: *4 less than half a number is greater than 5.*

A $4 - \frac{1}{2}x > 5$ **B** $4 - \frac{1}{2}x < 5$ **C** $\frac{1}{2}x - 4 > 5$ **D** $\frac{1}{2}x - 4 < 5$

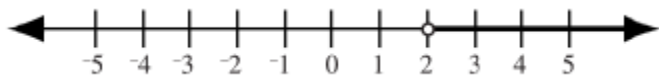
8. Johnathan can spend at most \$30.00 as the amusement park. It costs \$12.00 for admission and each ride costs \$3.00. Which inequality shows the number of rides that Johnathan will be able to ride at the amusement park.

A $x > 6$ **B** $x < 6$ **C** $x \geq 6$ **D** $x \leq 6$

9. Solve the following two-step inequality.

$$\frac{x-9}{2} < -10$$

10. Look at the number line below. The number line represents the graph of which inequality?



A. $3 > 2t - 1$

C. $5 < 3t + 11$

B. $6 < 2t + 2$

D. $8 > 2t - 4$

Day 4- Solving Inequalities Practice

Directions: You must show your work and check your answer.

$$1) \frac{p-11}{3} < 28$$

$$2) \frac{p+10}{-3} > 25$$

$$3) \frac{x-8}{-2} \leq 16$$

$$4) \frac{p-4}{4} \geq 16$$

$$5) \frac{h+3}{-5} < 28$$

$$6) \frac{j+9}{-2} > -14$$

$$7) 3w - 5 < 16$$

$$8) -2n - 14 > 16$$

$$9) 3h + .7 \geq 18.7$$

$$10) \frac{v}{-3} - 4 \geq 4$$

$$11) 14 \leq \frac{p}{6} - 7$$

$$12) 8 < \frac{p}{-2} - 14$$

Day 5 - Mixed Review

1 Solve. $6 = 4 - \frac{k}{3}$

A -30

C 6

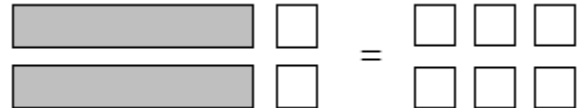
B -6

D 30

2 What value of x makes this equation true?

Key:

<input type="text"/>	= x	<input type="checkbox"/>	= 1
<input type="checkbox"/>	= $-x$	<input type="checkbox"/>	= -1



A $x = 4$

C $x = -2$

B $x = 2$

D $x = -4$

3 Which set of rational numbers does NOT satisfy the following inequality?

$$10 \leq m - 5$$

A {10, 11, 12}

C {18, 19, 20}

B {15, 16, 17}

D {25, 30, 35}

4 Solve: $2d - 7 < 3$

A $d > 5$

C $d < 2$

B $d < 5$

D $d > 2$

5 Tamika was buying 12-packs of soda. Each pack cost \$3.50. If she spent \$49.00, how many 12-packs did she buy?

A 4. B 12 C 14 D 37

6 Translate the following expression: *twice a number less than seven.*

A $7 - (2 + x)$

B $(2 + x) - 7$

C $2x - 7$

D $7 - 2x$

Week 2

Day 1 Focus:

Unit rate is the slope or constant rate of change of a proportional relationship

The unit rate can be written as: $\frac{y}{x}$

Equation of a proportional relationship: $y = mx$

Hint: Proportional relationships must have a constant rate of change

Slope = m

$$m = \frac{y}{x}$$

Example 1: What is the slope of the table below?

x	y
4	2
6	3

ANSWER: $\frac{1}{2}$ or 0.5

The Equation:
 $y = \frac{1}{2}x$ OR $y = 0.5x$

Step 1: Write the coordinates as a ratio of $\frac{y}{x}$

$$\frac{2}{4} = \frac{3}{6}$$

Step 2: Simplify if necessary

$$\frac{2}{4} = \frac{3}{6} = \frac{1}{2}$$

The slope is $\frac{1}{2}$ or 0.5

Example 2: What is the constant rate of change?

Step 1: Find the constant rate of change of the x-values and the y-values.

Step 2: Write the change as $\frac{y}{x}$.

Change in x: (+1) (+1) (+1)

x	-1	0	1	2
y	0	2	4	6

Change in y: (+2) (+2) (+2)

$$\text{Slope} = m = \frac{\Delta y}{\Delta x} = \frac{\text{change in } y}{\text{change in } x} = \frac{2}{1} = 2$$

You Try! Given

x	y
2	2.2
4	4.4
6	6.6

Which rate of change (m), would represent this proportional relationship?

- A. $m = 0.2$ B. $m = 1.1$ C. $m = 2.2$ D. $m = 2$

2) Given:

x	y
3	6.3
6	12.6
9	18.9

Which equation would represent this proportional relationship?

- A. $y = 0.2x$ B. $y = 1.1x$ C. $y = 2.1x$ D. $y = 2x$

3) On Monday, Richard worked for 4 hours and earned \$36. On Tuesday, Richard worked for 6 hours and earned \$54. On Wednesday, Richard worked for 5 hours and earned \$45. Let x be the hours Richard worked and y be Richard's earnings.

Are his earnings proportional?

What is the rate of change for his earnings?

Complete the table below:

x	y

Represent his earnings in a $y = mx$ function, where hours are represented by x and earnings are represented by y , and m represents the rate of change.

If Richard worked for 7 hours on Thursday, how much money would he earn?

How many hours did Richard work on Friday, when he earned \$81?

4) Which of the following represents a proportional relationship between the x - and y -values?

A.

x	y
1	5
2	6
3	7

C.

x	y
2	3
4	5
6	7

B.

x	y
1	1
2	5
3	9

D.

x	y
2	3
4	6
6	9

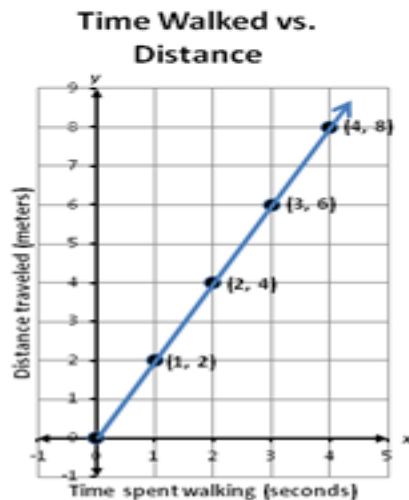
Day 2 Focus:

When determining the slope from a verbal description always look for key words like each, every, or per. **This is your rate of change.**

Example (using a table of values): Cecil walks 2 meters every second (verbal description). If x represents the number of seconds and y represents the number of meters he walks, this proportional relationship can be represented using a table of values:

x (seconds)	1	2	3	4
y (meters)	2	4	6	8

This proportional relationship could be represented using the equation $y = 2x$, since he walks 2 meters for each second of time. That is, $\frac{y}{x} = \frac{2}{1} = \frac{4}{2} = \frac{6}{3} = \frac{8}{4} = 2$, the unit rate (constant of proportionality) is 2 or $\frac{2}{1}$. The same constant ratio of y to x exists for every ordered pair. This proportional relationship could be represented by the following graph:



Directions: When given a table of values or verbal description write an equation in the form $y = mx$ to represent the relationship. *Remember, m is the slope.

1) $y = \underline{\hspace{2cm}}x$

x	y
0	0
1	6
2	12
3	18

2) $y = \underline{\hspace{2cm}}x$

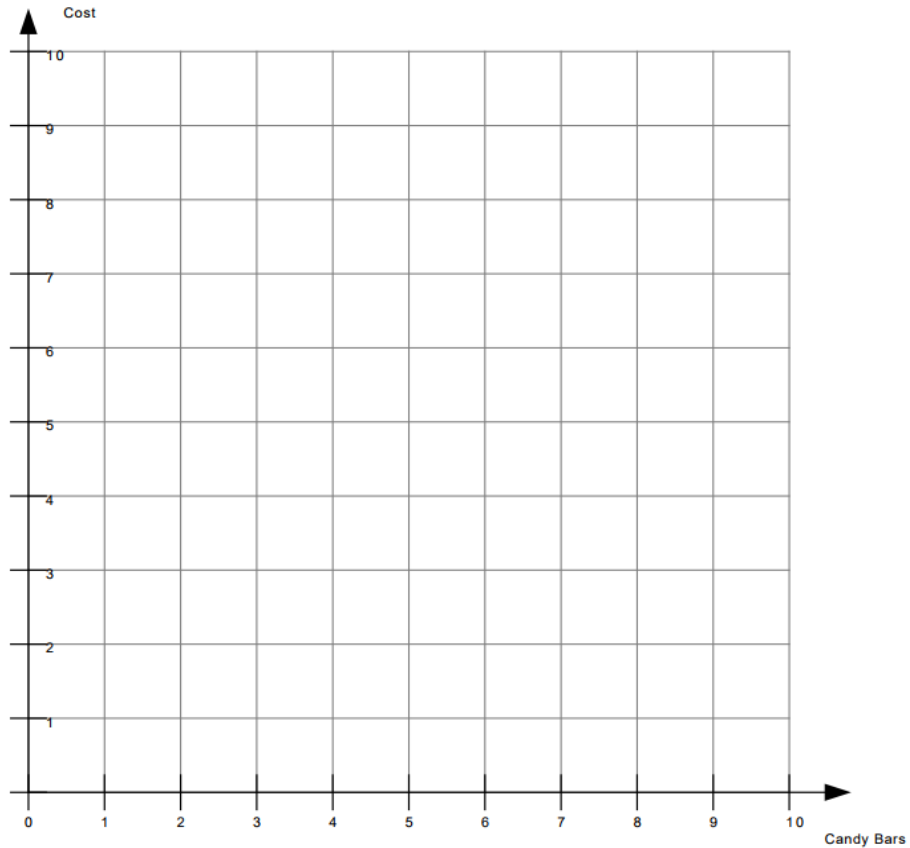
x	y
-1	-4
0	0
1	4
2	8

- 3)
- Jack is starting a toy collection. He plans to buy two new ones each month. $y = \underline{\hspace{2cm}}x$.
 - Jackie is creating a website. It costs \$44 per month to maintain the website. $y = \underline{\hspace{2cm}}x$.
 - An online camera store charges \$1.49 for every 8x10 picture that you order. $y = \underline{\hspace{2cm}}x$.

4) Taylor buys candy at the store that costs \$1.50 per candy bar. Create a table that could represent Taylor's cost per candy bar. Graph those points on the graph and create a rule that represents the relationship.

Candy	Cost

$y = \underline{\hspace{2cm}} x$

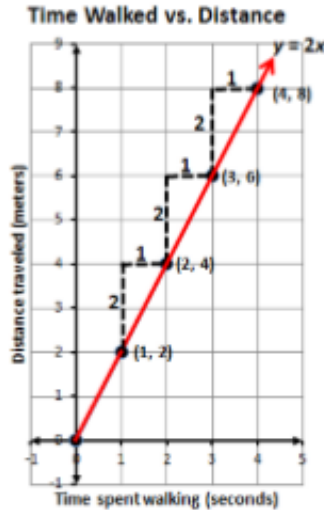


5) A canoe rental service charges \$30 an hour to rent a canoe. Write an equation representing the cost, y , of renting a canoe for x hours. What is the cost of renting the canoe for 6 hours?

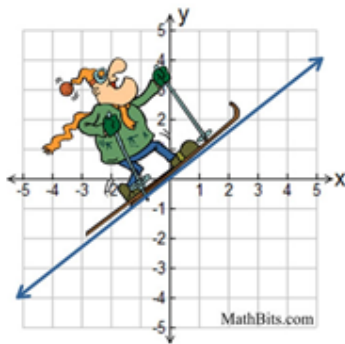
Day 3 Focus:

A graph of a proportional relationship can be created by graphing ordered pairs generated in a table of values (as shown above in the Day 2 Focus), or by observing the rate of change or slope of the relationship and using slope triangles to graph ordered pairs that satisfy the relationship given.

- Example (using slope triangles): Cecil walks 2 meters every second. If x represents the number of seconds and y represents the number of meters he walks, this proportional relationship can be represented graphically using slope triangles.



The rate of change from (1, 2) to (2, 4) is 2 units up (the change in y) and 1 unit to the right (the change in x), $\frac{2}{1}$ or 2. Thus, the slope of this line is 2. Slope triangles can be used to generate points on a graph that satisfy this relationship.

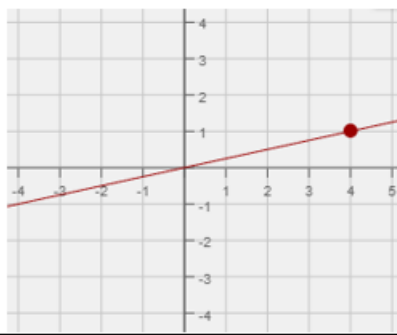


The **slope of a line, m** , is a *rate of change* which is constant in linear equations.

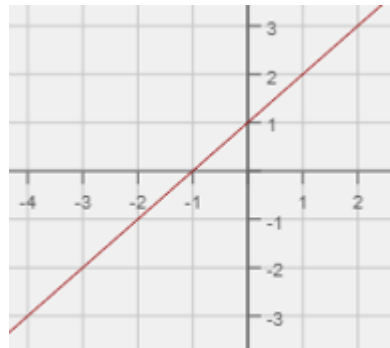
$$\text{slope} = \frac{\text{vertical change}}{\text{horizontal change}} = \frac{\text{rise}}{\text{run}} \quad \text{Slope} = \frac{\Delta y}{\Delta x}$$

Lines that have **positive slope**, rise from the lower left to the upper right on the axes. They go "uphill".

Directions: Identify the slope of each graph



$m =$ _____



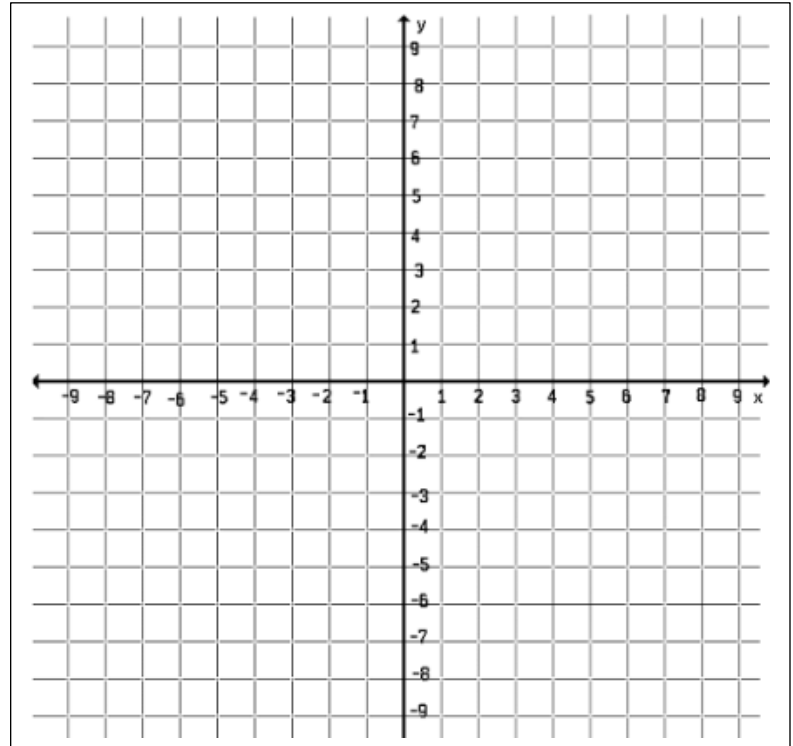
$m =$ _____

GRAPHING LINES USING A POINT AND THE SLOPE

$$(-1, -2) \quad m = 2$$

Steps

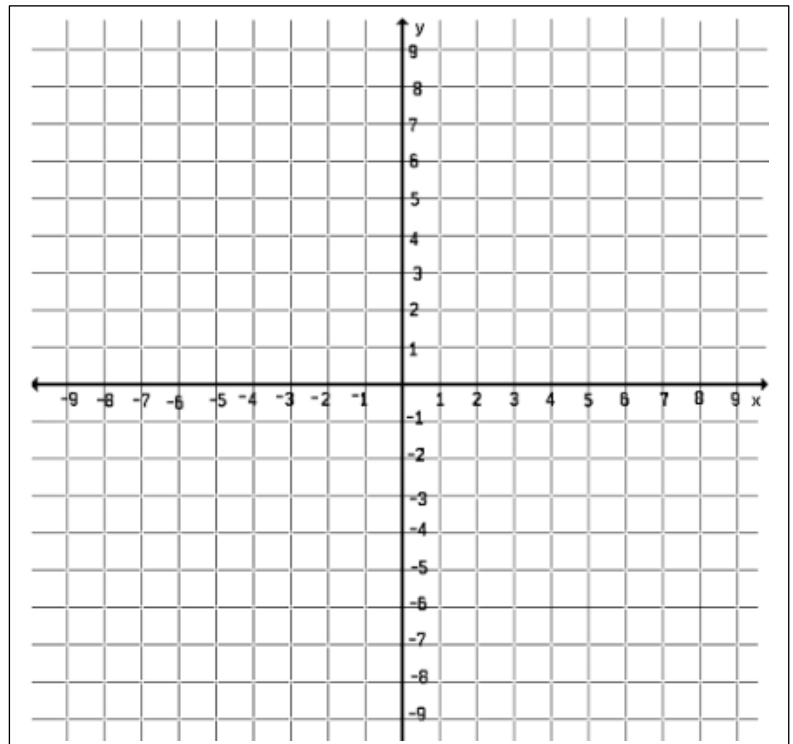
- **Step 1:** Plot $(-1, -2)$
- **Step 2:** Find the rise and the run
Slope $(m) = \frac{\text{rise}}{\text{run}} = \frac{\quad}{\quad}$
- **Step 3:** Plot points that is _____ units _____ and _____ units from $(-1, -2)$
- **Step 4:** Draw a line through the two points



$$(6, 9) \quad m = \frac{3}{2}$$

One more time

- **Step 1:** Plot $(6, 9)$
- **Step 2:** Find the rise and the run
Slope $(m) = \frac{\text{rise}}{\text{run}} = \frac{\quad}{\quad}$
- **Step 3:** Plot points that is _____ units _____ and _____ units from $(-1, -2)$
- **Step 4:** Draw a line through the two points



The Tortoise and the Hare

Suppose a Tortoise and a Hare are running a race.

The Turtle travels 12 cm in 3 sec

The Hare travels 7 cm in 2 sec

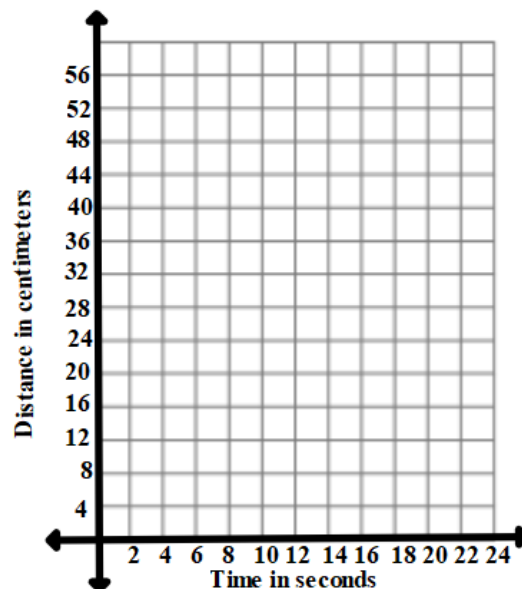
- Suppose the turtle keeps traveling at the same speed. What are 5 different distance and time values that he can travel so he travels at the same speed?

Time	Distance
3 sec	12 cm

- If I give you any number of seconds, how can you find the distance that turtle travels? Write your method in words.

Then write an equation.

- Graph the information in the table from Question 1 on the graph below.



- Explain how you can use your equation to fill in more points on the graph. Then add those points to the graph.

Suppose a Tortoise and a Hare are running a race.

The Turtle travels 12 cm in 3 sec

The Hare travels 7 cm in 2 sec

5. Suppose the hare keeps traveling at the same speed. What are 5 different distance and time values that he can travel so he travels at the same speed?

Time	Distance
2 sec	7 cm

6. If I give you any number of seconds, how can you find the distance that hare travels? Write your method in words.

Then write an equation.

7. Graph the information in the table from Question 5 on the same graph you used for the tortoise in Question 3.
8. Explain how you can use your equation to fill in more points on the graph. Then add those points to the graph.
9. Who is faster, the hare or the tortoise? _____

How can you see which one is faster by looking at the two graphs?

How can you see which one is faster by looking at the two equations?

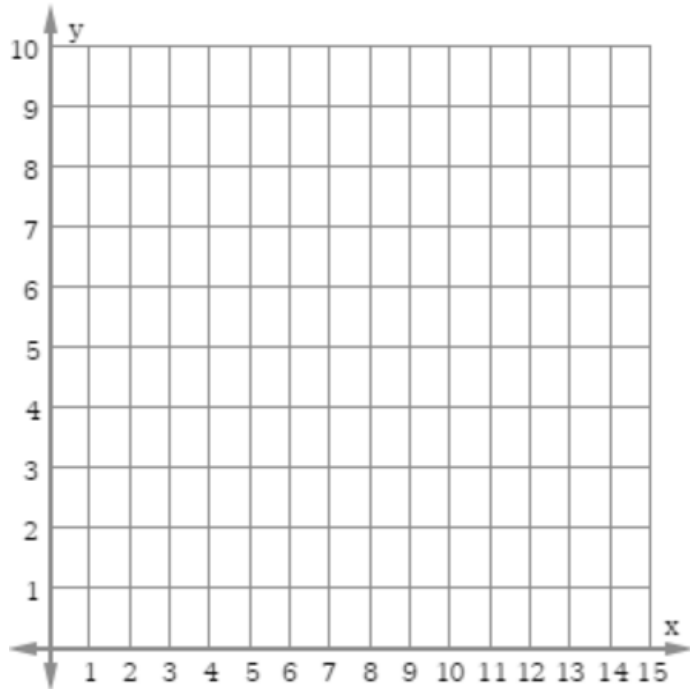
10. What is the slope of the hare? _____ What is the slope of the tortoise? _____

How did you determine the slope of each animal?

How can you see the slope of each animal in the graph?

How can you see the slope of each animal in the equation?

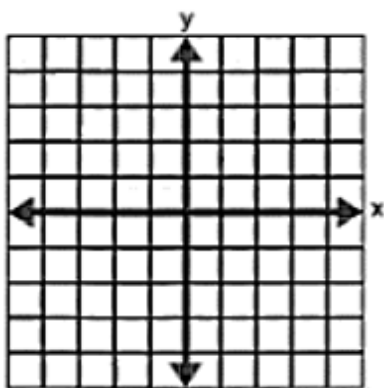
1. A line passes through (5, 3) with a slope of $\frac{3}{5}$. Plot at least 3 points on this line.



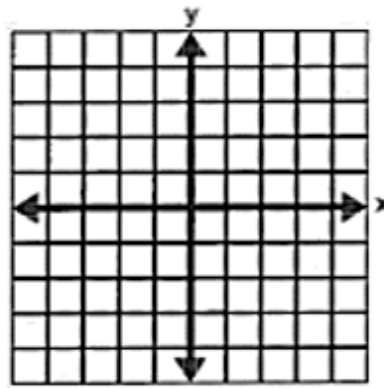
2. Select three points that lie on the graph of the line $y = \frac{1}{2}x$.

(0, 0)	(1, 2)	(3, 6)
(4, 2)	(10, 5)	(4, 8)

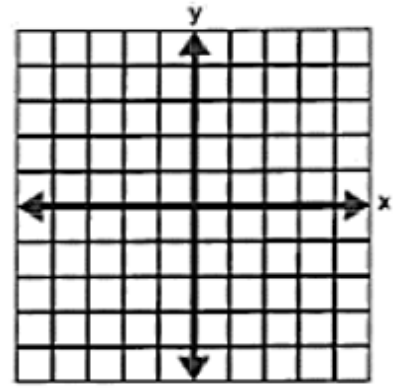
3. Graph the following equations:



$$y = x$$

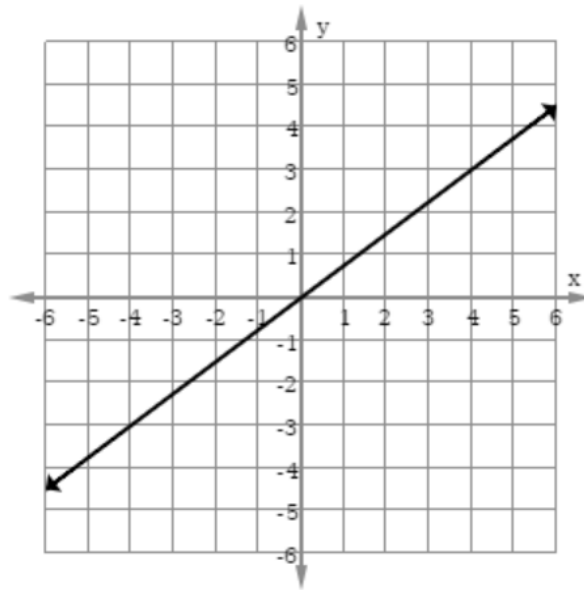


$$y = 3x$$



$$y = \frac{2}{3}x$$

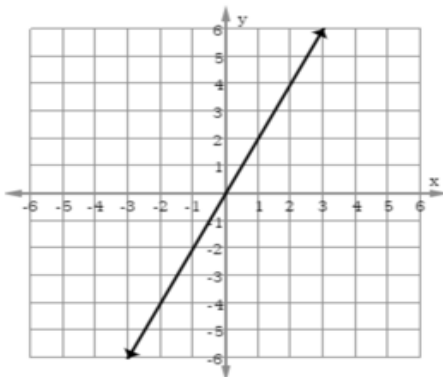
4. Which of the following equations represents the same proportional relationship shown in the graph?



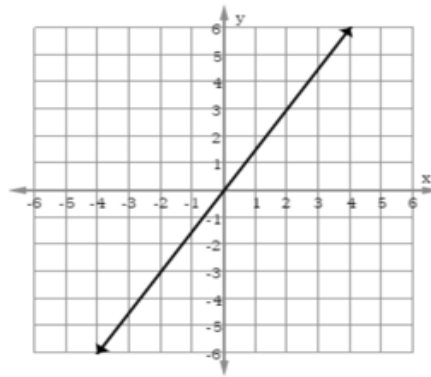
- A. $y = \frac{4}{3}x$
- B. $y = \frac{3}{4}x$
- C. $y = 3x$
- D. $y = 4x$

5. Which of the following graphs represents $y = \frac{2}{3}x$?

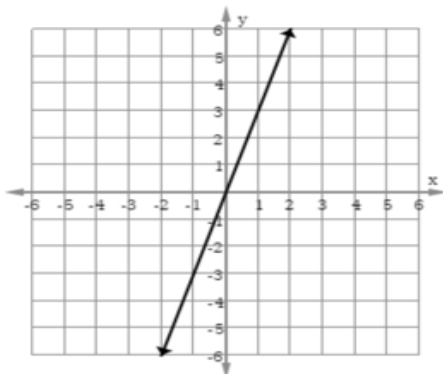
A.



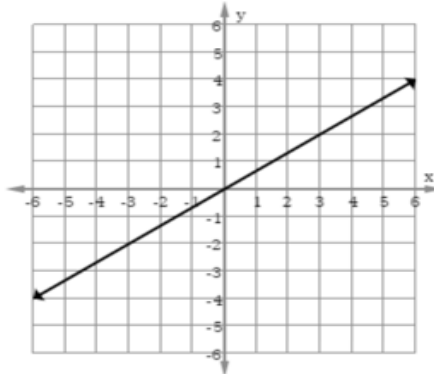
C.



B.



D.



Week 3

Day 1- Discovering Y-Intercept

x			y
2	$+4=$	\rightarrow	6
3	$+4=$	\rightarrow	7
4	$+4=$	\rightarrow	8
5	$+4=$	\rightarrow	9

1. Look at the table to the right. What observations do you notice?

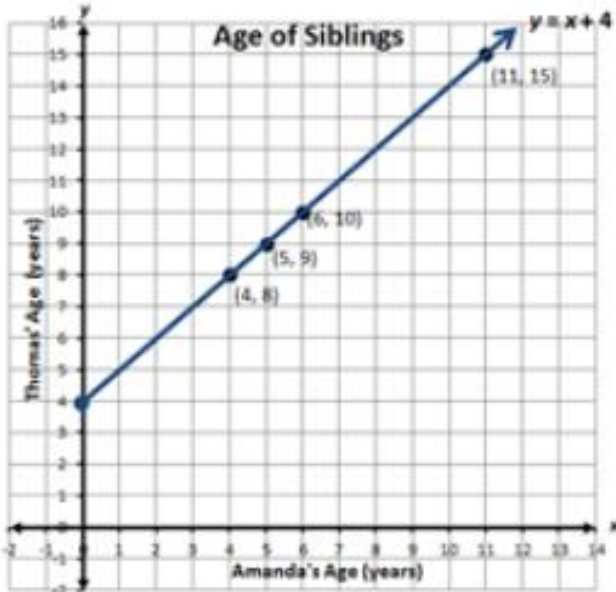
2. What happens to y as x increases?

3. What rule represents the situation?

4. Thomas is four years older than his sister, Amanda. The following table shows the relationship between their ages at any given point.
 - a. Fill in the rest of the ratio table.
 - b. What patterns do you see?

Amanda's Age (x)					3	4	5	6			
Thomas' Age (y)					7	8	9	10			

Look at the graph below.



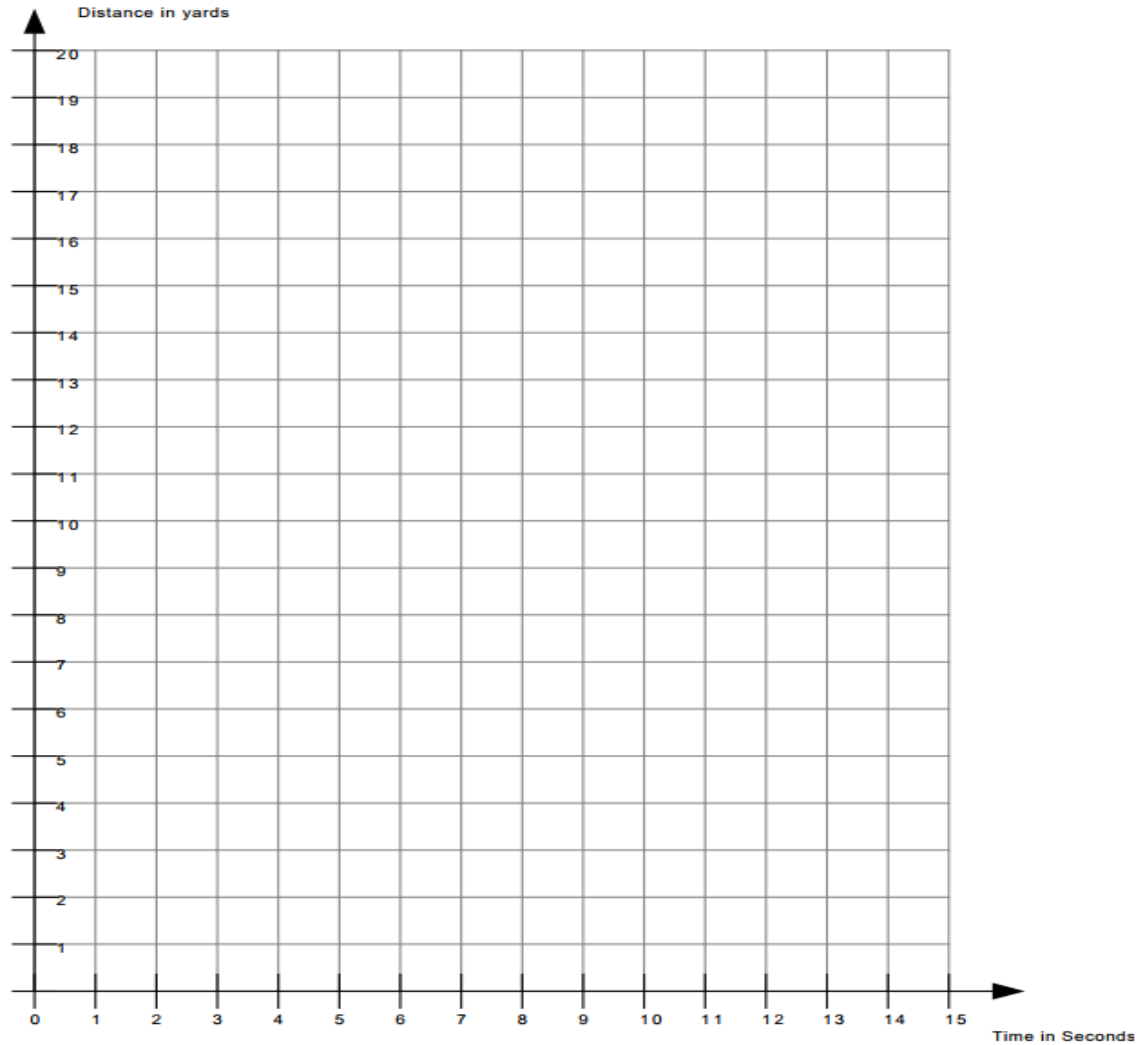
- c. What is the slope of this line? (Hint: Use $\frac{\text{Change in } y}{\text{Change in } x}$)

Day 1- Discovering Y-Intercept (cont.)

- Jordyn's big sister gives her a 10-yard head start before they start racing. If Jordyn can run 1 yard per second, make a table of values, graph, and an equation that represents how far Jordyn can go.

Time (seconds)	Distance (yards)

$$y = x + \underline{\hspace{2cm}}$$



Notes:

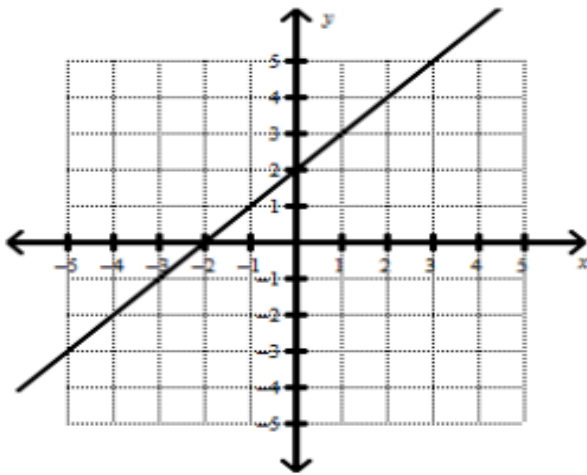
$$y = x + b$$

b represents the **y-intercept** (the point where the point crosses the -).

Ordered pair is **(0, *b*)**

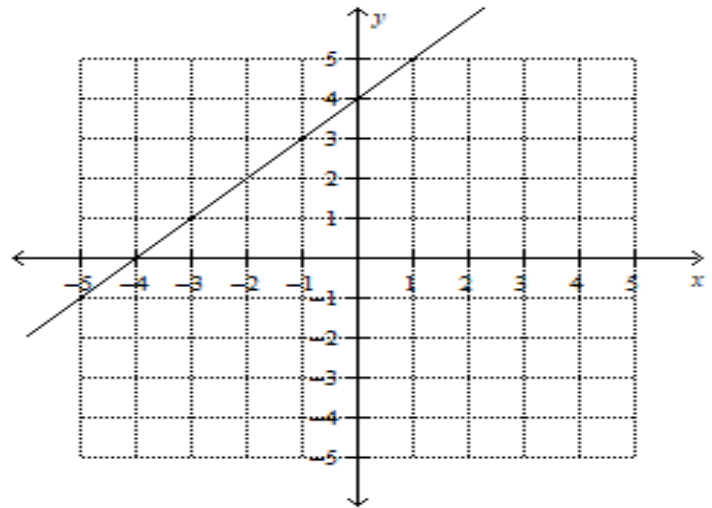
Day 2- SOL 7.10 D Graph Line ($y = x + b$) given Ordered Pair and Y-Intercept

1. For each graph write the y-intercept and equation. Use the notes at the bottom of the previous page. The first graph has been completed for you.



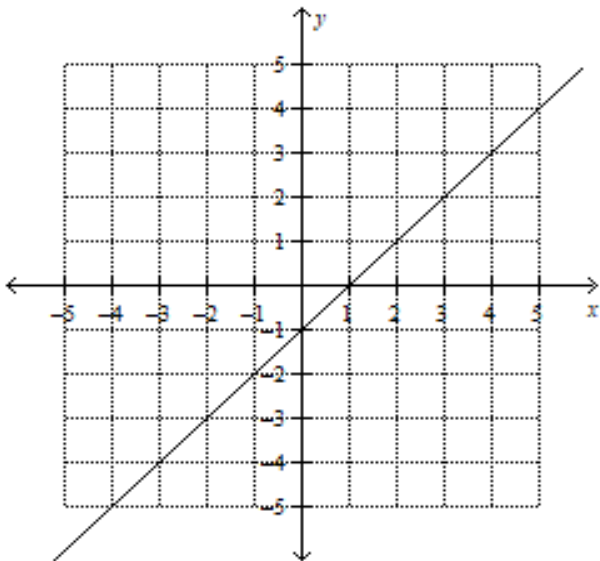
Y-intercept 2 (crosses the y-axis at (0,2))

Equation $y = x + 2$



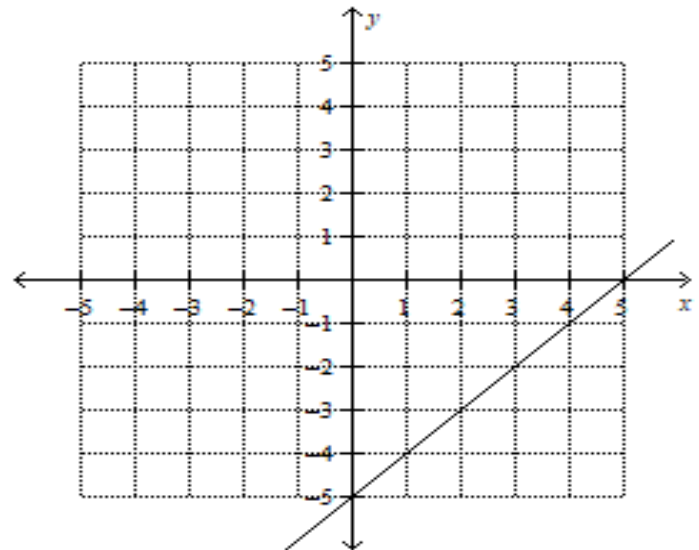
Y-intercept: _____

Equation: _____



Y-intercept: _____

Equation: _____

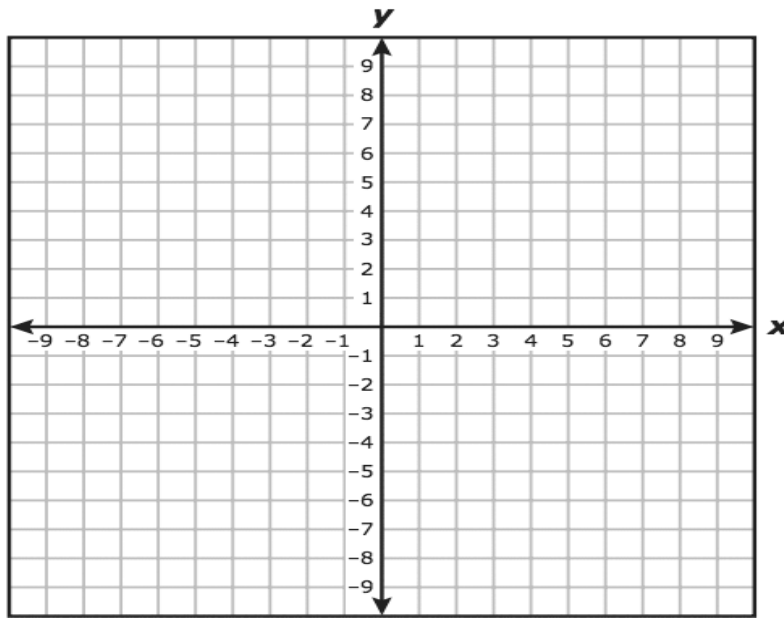


Y-intercept: _____

Equation: _____

Day 2- SOL 7.10 D Graph Line ($y = x + b$) given Ordered Pair and Y-Intercept (cont.)

2. Given a linear function with a y-intercept of 5 that passes through the point (3, 8), graph at least three points.



Equation _____

3. For each example, graph at least three points on the coordinate plane. Slope equals to "1."

Y-intercept: -2

Y-intercept: 1

Y-intercept: 4

Point: (4, 2)

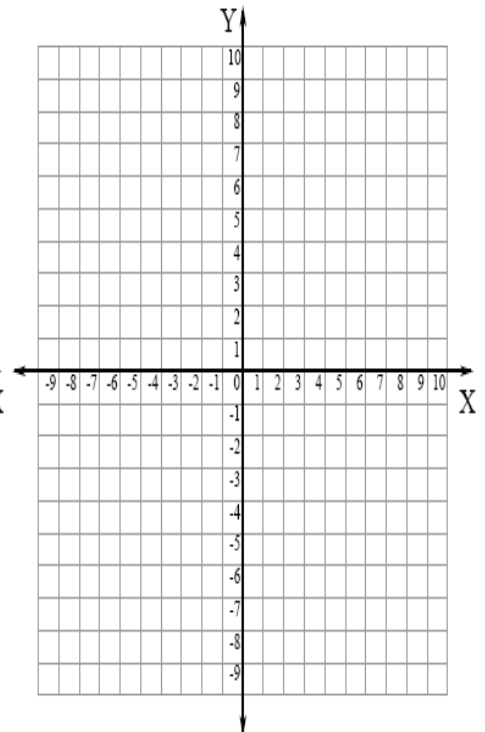
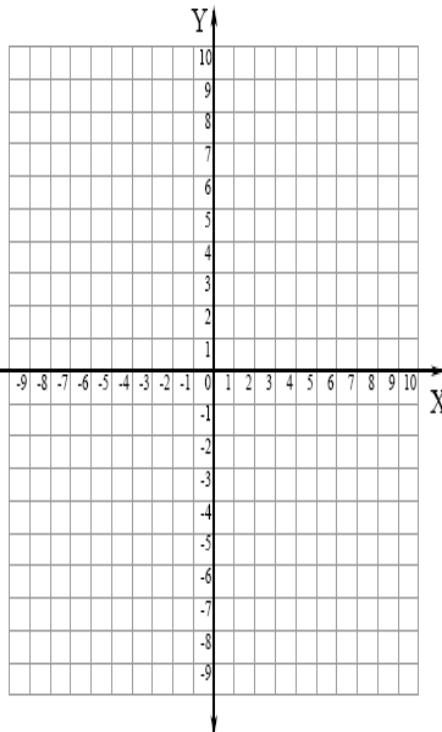
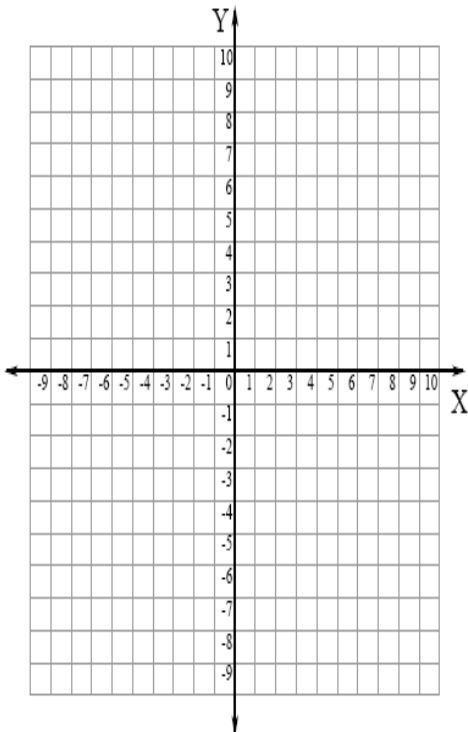
Point: (5, 6)

Point: (-2, 2)

Equation _____

Equation _____

Equation _____

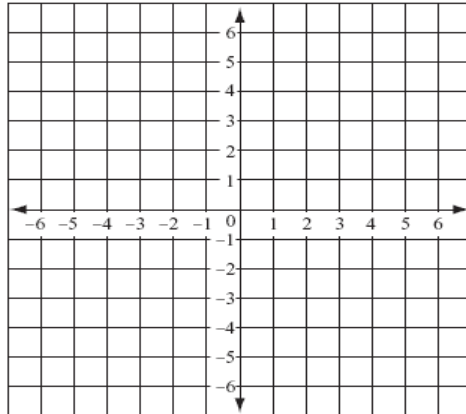


Day 3- SOL 7.10 D Graphing a Line From an Equation ($y = x + b$)

Directions: Graph each equation. Use substitution to find the y coordinate. Write the ordered pair, graph and write the y -intercept. The first example has been started for you.

1. Graph the following equation. $y = x - 2$

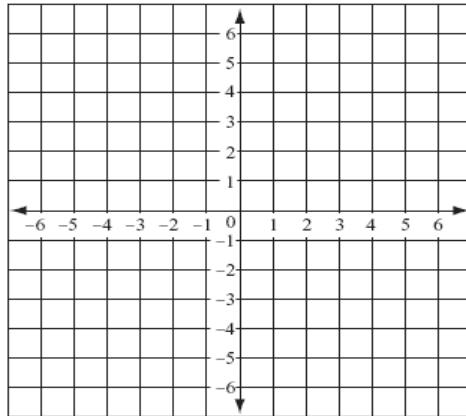
x	$x - 2$	y	(x, y)
-3	$-3 - 2$	-5	$(-3, -5)$
-1	$-1 - 2$	-3	$(-1, -3)$
0	$0 - 2$	-2	$(0, -2)$
2			
5			



What is the y -intercept? _____

2. Graph the following equation. $y = x + 5$

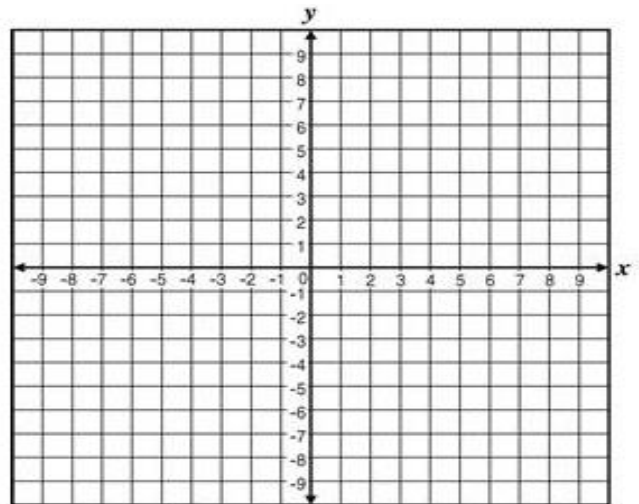
x		y	(x, y)
-7			
-5			
0			
1			
2			



What is the y -intercept? _____

3. Graph the following equation. $y = x - 8$

x		y	(x, y)
-1			
0			
1			
3			
9			

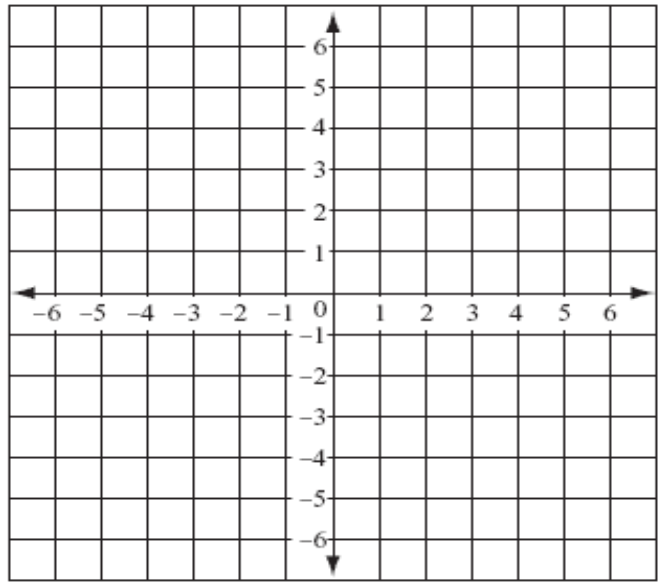


What is the y -intercept? _____

Day 3- SOL 7.10 D Graphing a Line From an Equation ($y = x + b$) (cont.)

4. Graph the following equation. $y = x + 1.5$

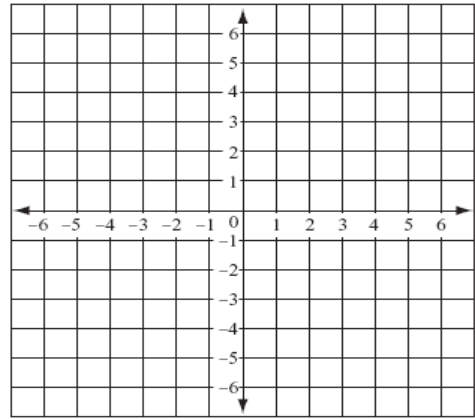
x		y	(x, y)
-4			
-1			
0			
2			
5			



What is the y-intercept? _____

5. Graph the following equation. $x + 4 = y$

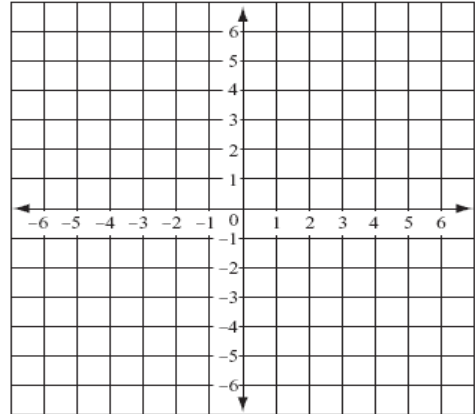
x		y	(x, y)
-6			
-4			
0			
1			
2			



What is the y-intercept? _____

6. Graph the following equation. $-5 + x = y$

x		y	(x, y)
-6			
-4			
0			
1			
2			



What is the y-intercept? _____

Day 4- Identify y-intercept and equation

1. The table below shows the relationship between x and y .

x	y
-2	-6
-1	-5
1	-3
2	-2

- a. What is the y-intercept for this relationship? _____
- b. Write an equation to represent this relationship. _____
2. The table below shows the relationship between x and y .

X	Y
-7	2
-5	4
-1	8
3	12

- a. What is the y-intercept for this relationship? _____
- b. Write an equation to represent this relationship. _____
3. The table below shows the relationship between x and y .

X	Y
-12	-13
-8	-9
-2	-3
3	2

- a. What is the y-intercept for this relationship? _____
- b. Write an equation to represent this relationship. _____

Day 4- Identify y-intercept and equation (cont.)

4. The table below shows the relationship between x and y .

x	0	4	12
y	6	10	18

- a. What is the y- intercept?
b. Write an equation in the form of $y = x + b$, $b \neq 0$

5. The table shows the relationship between Ky's age and Lu's age.

Lu's Age	1	4	10
Ky's Age	8	11	17

Which equation could be used to determine Ky's age, when given Lu's age.

- A. $y = 8x$
B. $y = x + 7$
C. $y = 2x + 6$
D. $y = \frac{1}{2}x + 7.5$

Bonus:

6. The table below shows the relationship between x and y .

X	Y
-1.1	10.9
-0.1	11.9
1.1	13.1
2.1	14.1

- c. What is the y-intercept for this relationship? _____
d. Write an equation to represent this relationship. _____

Day 5- Proportional vs. Additive Relationships

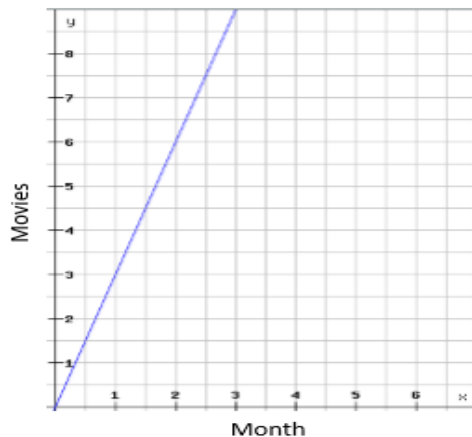
<i>Proportional</i>	<i>Additive</i>
<ul style="list-style-type: none"> When two quantities, x and y, vary in such a way that one of them is a constant multiple of the other Written in the form $y = mx$ $m = \text{the slope} = \frac{\text{Change in } y}{\text{Change in } x} = \frac{\text{Rise}}{\text{Run}}$ passes through the origin (0,0) 	<ul style="list-style-type: none"> Two quantities, x and y, have an additive relationships when a constant value, b, exists. A value is “added” or “subtracted” Written in the form $y = x + b$ b represents the y-intercept and passes through the y-axis (0,b) m (slope) is always 1

Mr. Scott loves renting movies. He goes the Redbox and rents 3 movies per month. Create a table showing the relationship between the month x, and the number of movies rented, y.

Month	Movies

Write an equation to that could be use to determine the number of movies, given the the month.

Is the this an additive or proportional relationship? Explain

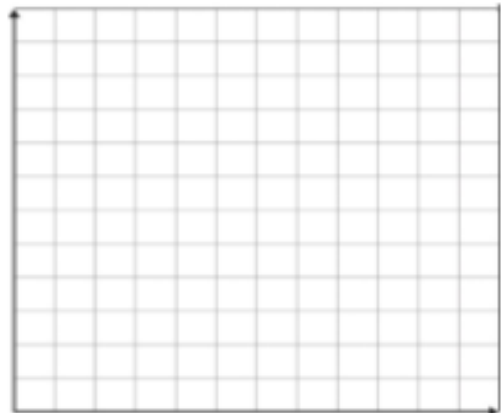


Maria has 3 ceramic cats. She plans to buy some more. Write an equation that could represent the total number of cats, given how many new cats. Create a table and Graph.

Equation: _____

New Cats	0	3	8	
Total Cats			9	13

Is this an additive or proportional relationship? Explain

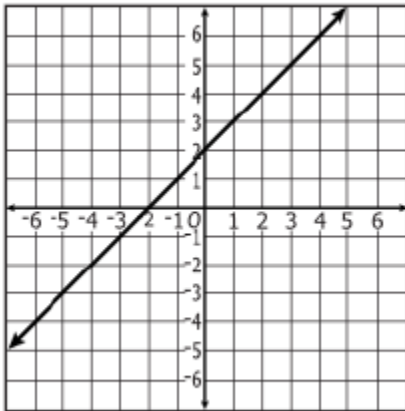


Day 5- Proportional vs. Additive Relationships (cont.)

2016 Mathematics Standards of Learning
Algebra Readiness Formative Assessment

7.10e

1. Steven went to play video games in Games Galore arcade. Games Galore charges \$1.50 for each game played. Represent the relationship between total cost, y , and number of games played, x using a table, graph and equation. Is this relationship a proportional or additive relationship? Explain.
2. Sam went to play video games in Video Game Central arcade. Video Game Central charges \$10 to get into the arcade and then \$1 per game played. Represent the relationship between total cost, y , and number of games played, x using a table, graph and equation. Is this relationship a proportional or additive relationship? Explain.
3. The graph represents which table of ordered pairs?



A.

x	y
-3	-5
-1	-3
2	0
4	2

B.

x	y
2	-2
4	0
-1	-3
-3	5

C.

x	y
-2	-4
0	-2
3	1
5	5

D.

x	y
-4	-2
-2	0
1	3
3	5