

Name: _____ Date: _____ Period: _____

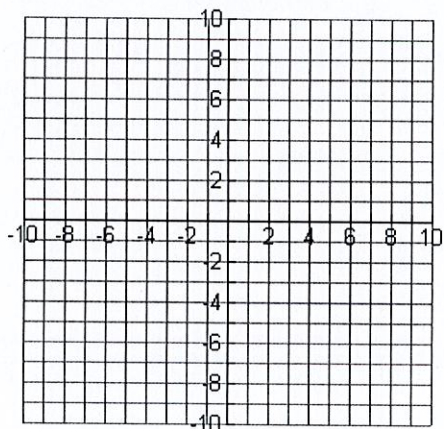
The Slope of Four Types of Lines

The graph of a linear equation will form a line that travels one of the following ways:

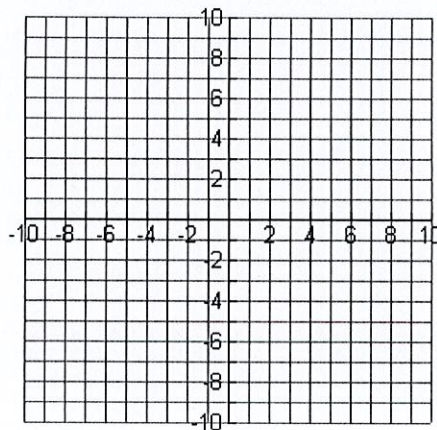
- 1.
- 2.
- 3.
- 4.

Directions: For each pair of points, plot the ordered pairs and draw a straight line through them. Then calculate the slope of the line. Label the line as one of the four types shown above.

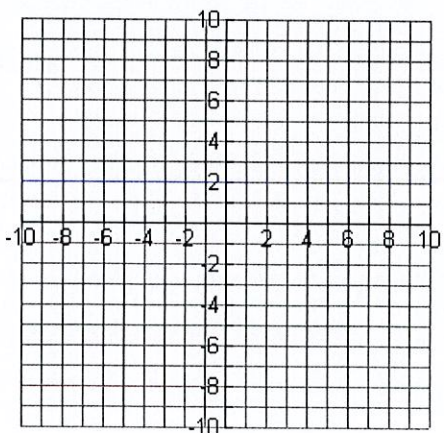
1. $(-1, 1)$ and $(4, 3)$



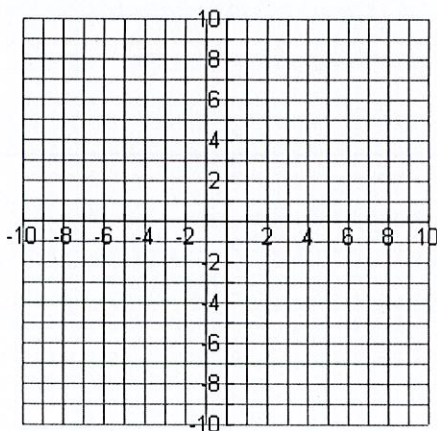
2. $(-2, 1)$ and $(3, 4)$



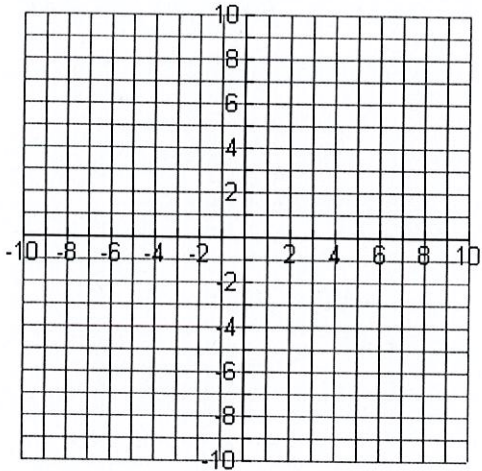
3. $(-1, 5)$ and $(2, 2)$



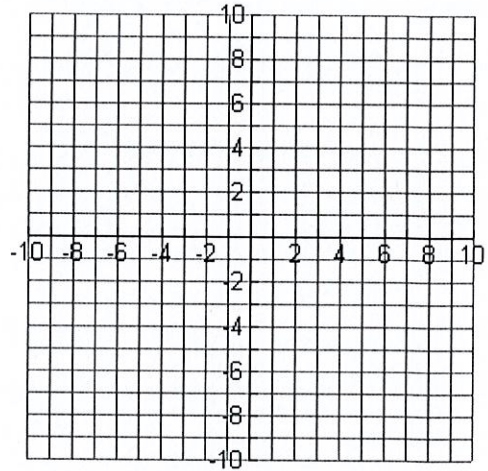
4. $(0, 4)$ and $(2, 1)$



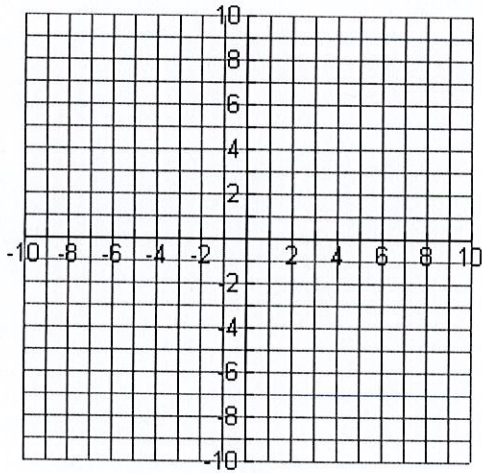
5. $(-5, 2)$ and $(6, 2)$



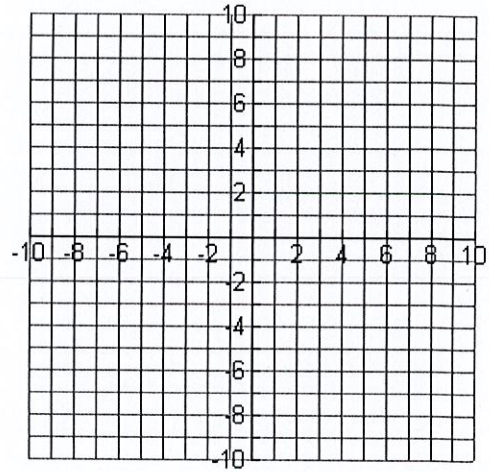
6. $(7, -5)$ and $(-4, -5)$



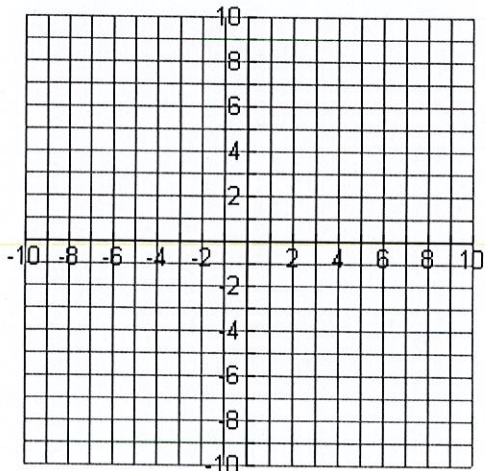
7. $(4, 4)$ and $(0, 4)$



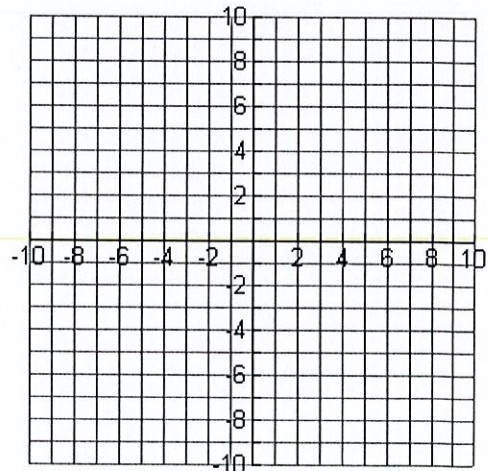
8. $(4, 2)$ and $(4, -6)$



9. $(7, 1)$ and $(7, 8)$



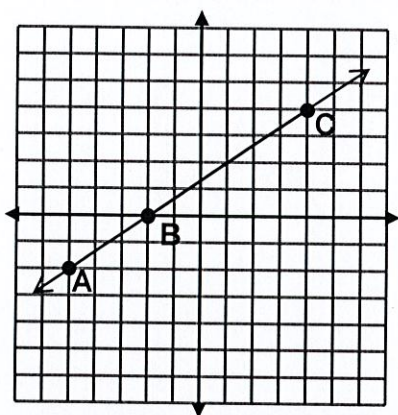
10. $(-7, -4)$ and $(-7, 8)$



Counting for Slope

NAME _____
DATE: _____

$$SLOPE = \frac{\text{rise}}{\text{run}} = \frac{\text{vertical change}}{\text{horizontal change}}$$



To get from A to B, you move ____ units **up** and ____ units to the **right**.

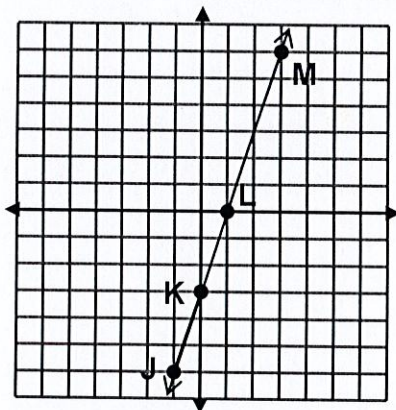
$$\text{slope} = \frac{\boxed{}}{\boxed{}}$$

To get from B to C, you move ____ units **up** and ____ units to the **right**.

$$\text{slope} = \frac{\boxed{}}{\boxed{}}$$

What relationship do you see between the two slopes?

For each example, shade the slope triangle. The triangle should always be drawn so that you move up or down and then to the **right**.



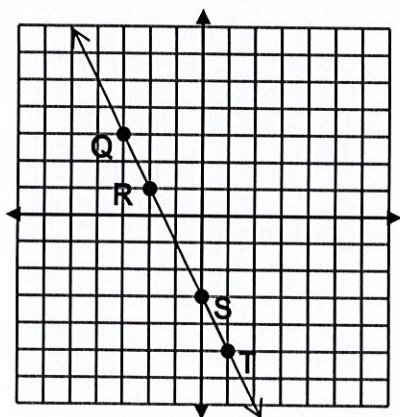
To get from L to M, you move ____ units **up** and ____ units to the **right**.

$$\text{slope} = \frac{\boxed{}}{\boxed{}}$$

To get from J to K, you move ____ units **up** and ____ units to the **right**.

$$\text{slope} = \frac{\boxed{}}{\boxed{}}$$

What relationship do you see between the two slopes?



To get from R to S, you move ____ units **down** and ____ units to the **right**.

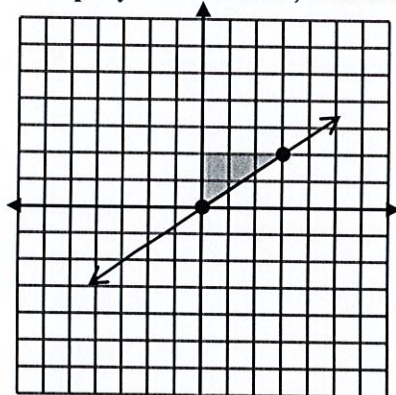
$$\text{slope} = \frac{\boxed{}}{\boxed{}}$$

To get from Q to T, you move ____ units **down** and ____ units to the **right**.

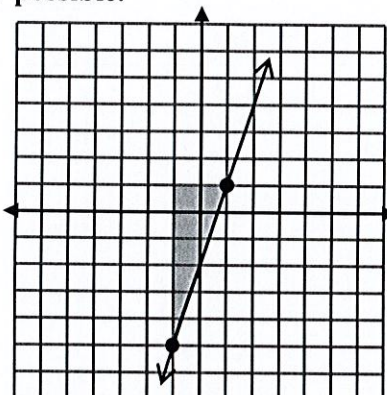
$$\text{slope} = \frac{\boxed{}}{\boxed{}}$$

What relationship do you see between the two slopes?

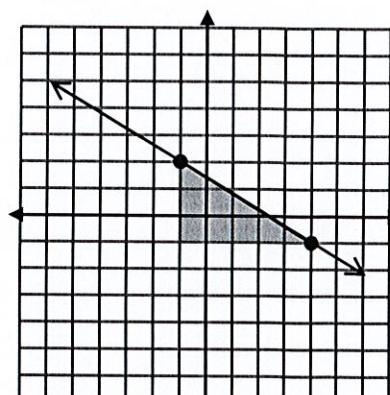
Determine the slope for each line on this page. Where necessary, draw the slope triangle. Then, write the slope as a fraction. Remember that when you move down, the numerator is negative. **Simplify the fraction, whenever possible.**



Up/down: ____
Right: ____ slope =

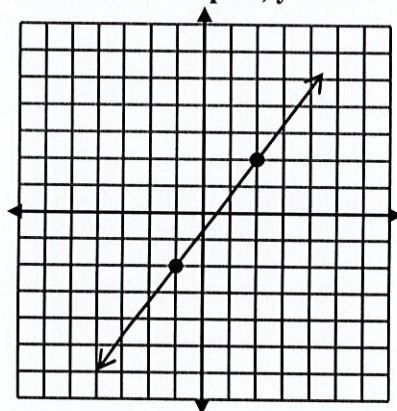


Up/down: ____
Right: ____ slope =

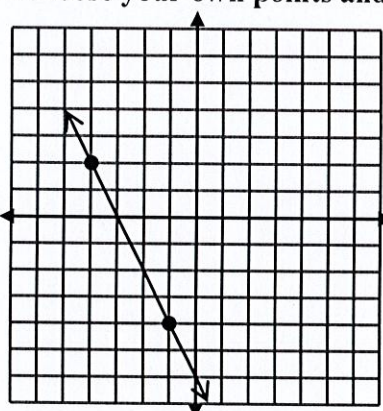


Up/down: ____
Right: ____ slope =

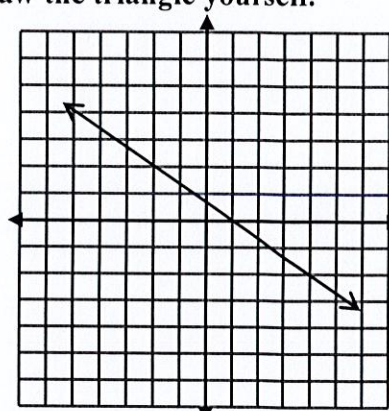
For some examples, you'll have to choose your own points and draw the triangle yourself.



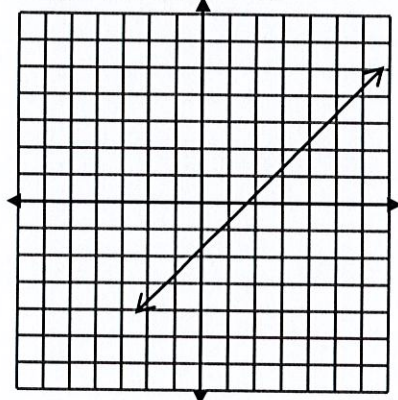
Up/down: ____
Right: ____ slope =



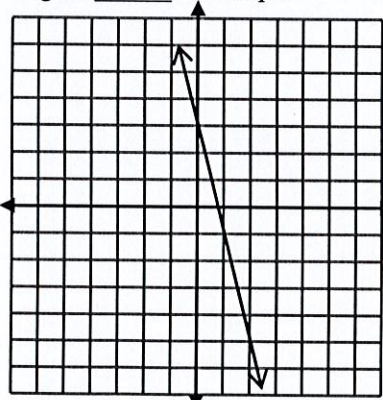
Up/down: ____
Right: ____ slope =



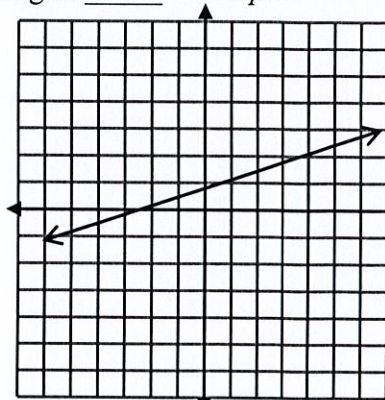
Up/down: ____
Right: ____ slope =



Up/down: ____
Right: ____ slope =



Up/down: ____
Right: ____ slope =



Up/down: ____
Right: ____ slope =

Unit Rate Leading to Slope

Nana likes her milk "just right". This means that for every 2 cups of milk, you must mix in 8 scoops of chocolate powder. Fill in the missing values in the table, being sure to maintain a proportional relationship.

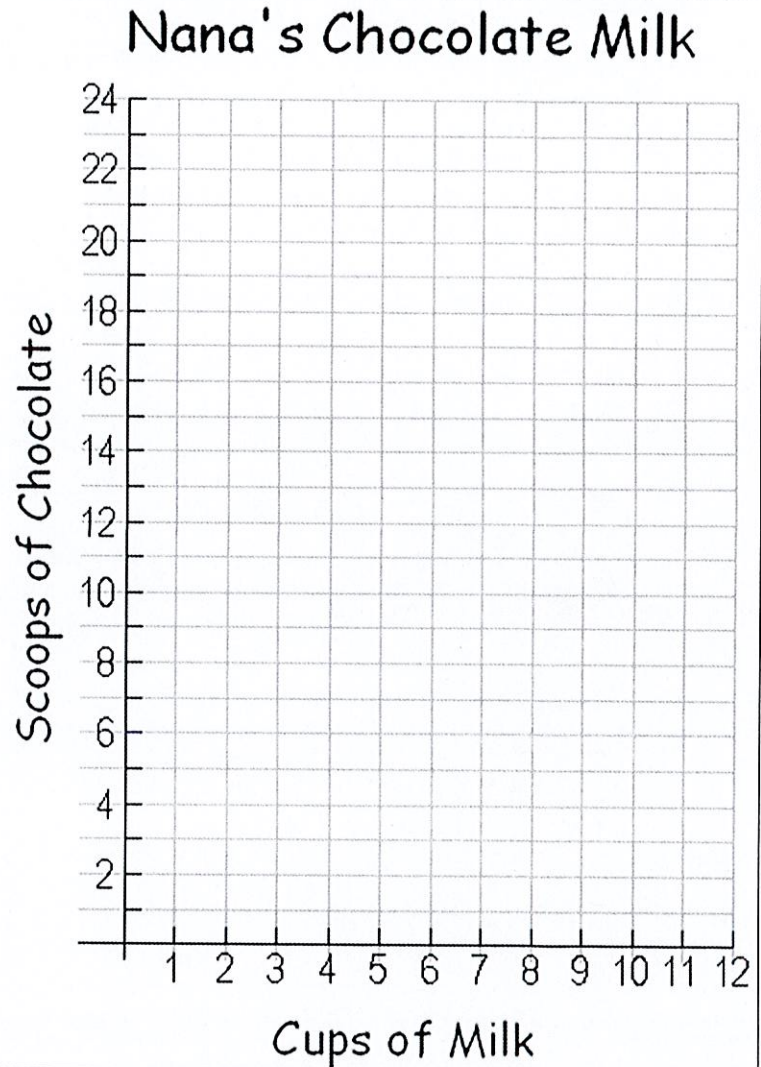
Cups of Milk (x)	Scoops of Chocolate
2	8
6	
	20
3	
1	
	16

Use the ordered pairs from the table to create a graphical representation of the relationship.

What is the unit rate? What does it mean?

What is the constant of proportionality?

What is the equation ($y = kx$) of the relationship?



Slope: _____

$$\text{Slope} = \frac{\text{change}}{\text{change}} = \underline{\hspace{2cm}}$$

Find the $\frac{\text{rise}}{\text{run}}$ between each set of points on the graph by counting vertical and horizontal change.

Between (0, 0) and (1, 4)	Between (0, 0) and (3, 12)	Between (1, 4) and (5, 20)	Between (2, 8) and (6, 24)
$\frac{\text{rise}}{\text{run}} =$	$\frac{\text{rise}}{\text{run}} =$	$\frac{\text{rise}}{\text{run}} =$	$\frac{\text{rise}}{\text{run}} =$

The slope equals _____. What else had this value?

Suppose my favorite lemonade recipe calls for 8 lemons to 12 cups of sugar water. Fill in the missing values in the table, being sure to maintain a proportional relationship.

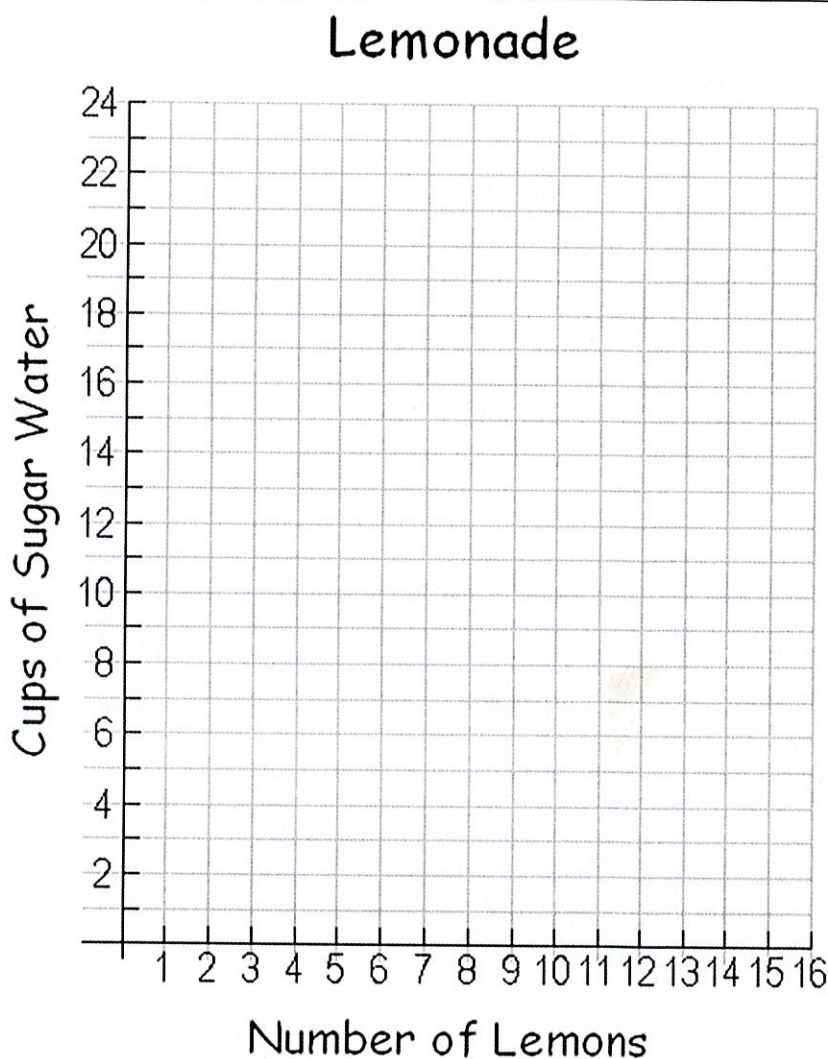
Number of Lemons (x)	Sugar Water (cups)
8	12
16	
	6
2	
	$\frac{3}{2}$
	1

Use the ordered pairs from the table to create a graphical representation of the relationship.

What is the unit rate? What does it mean? (write improper)

What is the constant of proportionality? (write as an improper fraction)

What is the equation ($y = kx$) of the relationship?



Find the $\frac{\text{rise}}{\text{run}}$ between each set of points on the graph by counting vertical and horizontal change.

Simplify each answer, but leave fractions improper if applicable.

Between (0, 0) and (2,3)	Between (0,0) and (16,24)	Between (2,3) and (16,24)	Between (4,6) and (8,12)
$\frac{\text{rise}}{\text{run}} =$	$\frac{\text{rise}}{\text{run}} =$	$\frac{\text{rise}}{\text{run}} =$	$\frac{\text{rise}}{\text{run}} =$

What is the slope of the line between any two points on the graph?

In which ordered pair do you see this in the table? What special ordered pair is this?

Where do you see the slope in the equation?

Name: _____

Date: _____ Period: _____

Homework-Determining Slope from a Graph

Another word for the “constant rate of change” of a line is slope. $\text{Slope (m)} = \frac{\text{vertical change}}{\text{horizontal change}} = \frac{\text{rise}}{\text{run}}$

Steps to Determining the Slope of a Line:

Step 1: Determine if the slope is positive (the line is rising) or negative (the line is falling)

Step 2: Find two points on the line

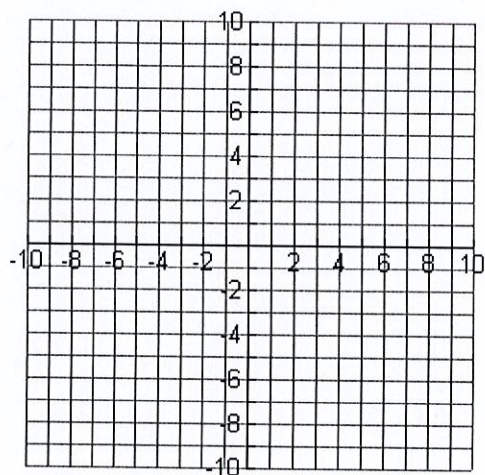
Step 3: Count how much the graph is rising or falling from one point to the next (*change in y*)

Step 4: Count how much the graph is running from one point to the next (*change in x*)

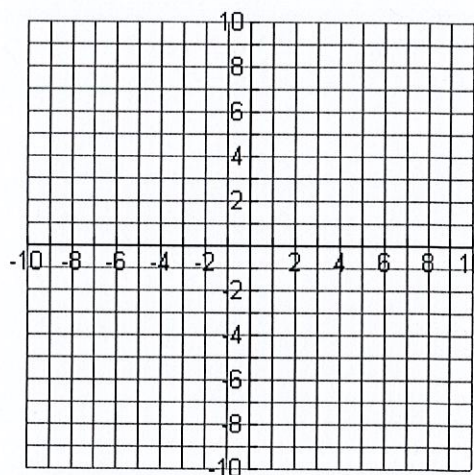
Step 5: Write slope as a rate of change in **simplest form**: $m = \frac{\text{rise}}{\text{run}} = \text{rate of change}$

Examples Determine the slope of the lines formed by graphing the ordered pairs below and label as positive, negative, zero, or no slope.

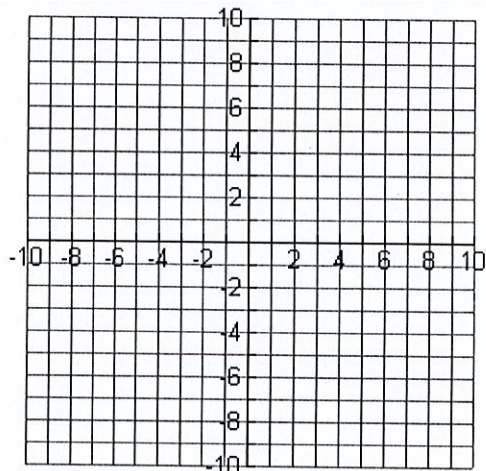
1. (1, 2), (3, 6)



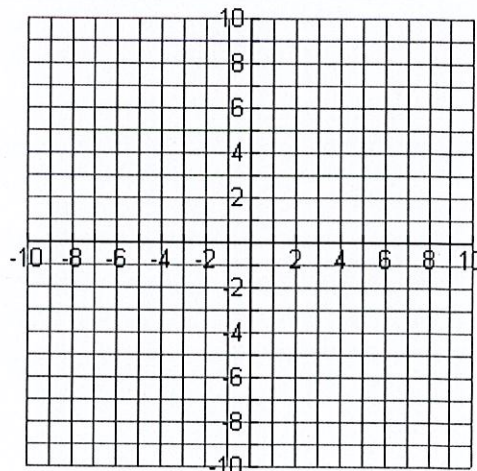
2. (2, 6), (4, 0)



3. (8, -4), (-6, -4)



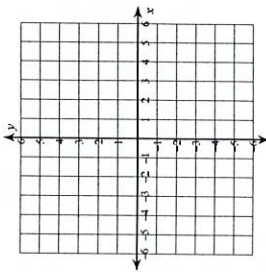
4. (7, 1), (7, 8)



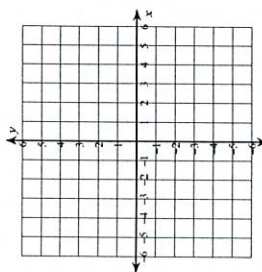
Graphing Lines in Slope-Intercept Form

Sketch the graph of each line.

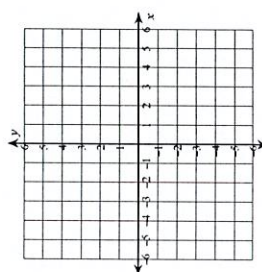
1) $y = \frac{1}{4}x - 1$



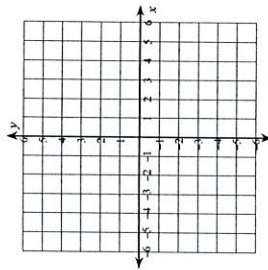
3) $y = x + 1$



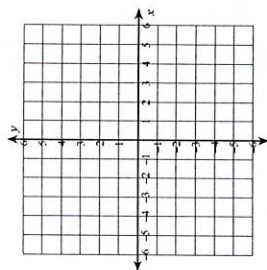
5) $y = -3x - 3$



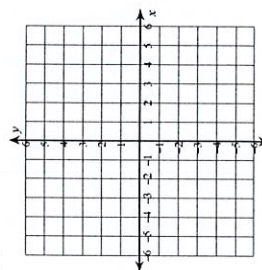
2) $y = -x + 2$



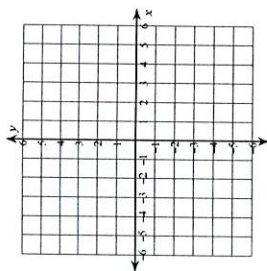
4) $y = \frac{4}{3}x - 4$



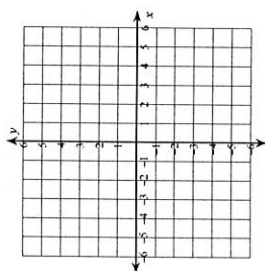
6) $y = 4$



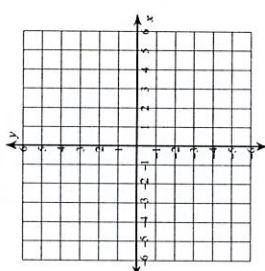
7) $y = -\frac{3}{5}x - 1$



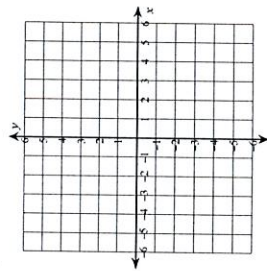
9) $y = 3$



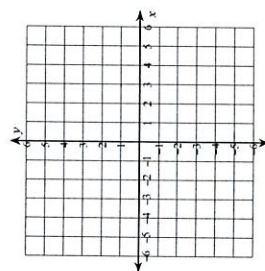
11) $y = 4x + 3$



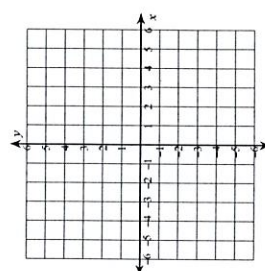
8) $x = 5$



10) $y = 3x - 2$



12) $y = \frac{6}{5}x + 5$



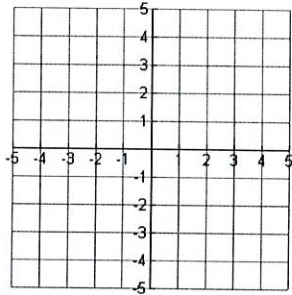
U5-10 Graphing Linear Equations

For each line, state the slope and where the line crosses the y-axis (y – intercept). Then, graph the line.

1. $y = 3x$

$m = \underline{\hspace{2cm}}$

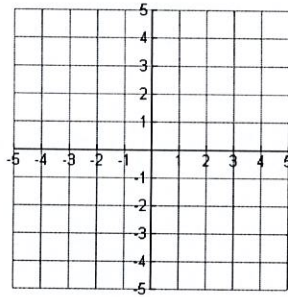
y-intercept: $(0, \)$



$y = 3x + 2$

$m = \underline{\hspace{2cm}}$

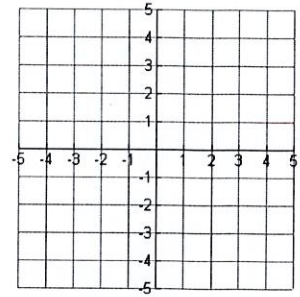
y-intercept: $(0, \)$



$y = 3x - 1$

$m = \underline{\hspace{2cm}}$

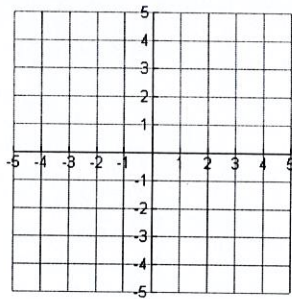
y-intercept: $(0, \)$



2. $y = -2x$

$m = \underline{\hspace{2cm}}$

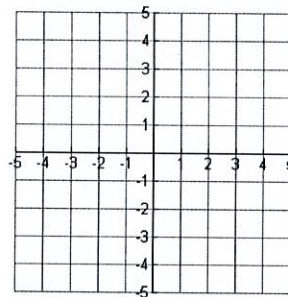
y-intercept: $(0, \)$



$y = -2x - 3$

$m = \underline{\hspace{2cm}}$

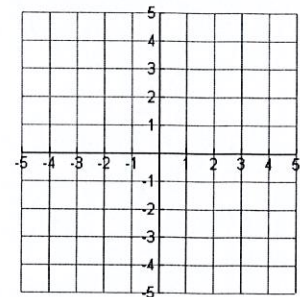
y-intercept: $(0, \)$



$y = -2x + 4$

$m = \underline{\hspace{2cm}}$

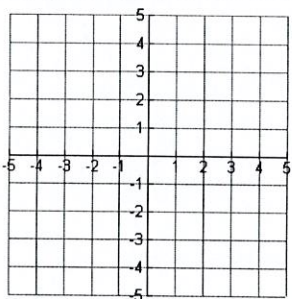
y-intercept: $(0, \)$



3. $y = x + 1$

$m = \underline{\hspace{2cm}}$

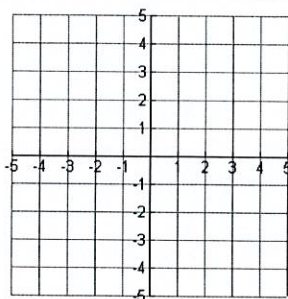
y-intercept: $(0, \)$



4. $y = -3x - 2$

$m = \underline{\hspace{2cm}}$

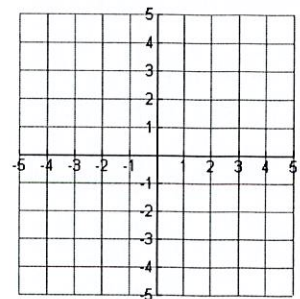
y-intercept: $(0, \)$



5. $y = 2x + 3$

$m = \underline{\hspace{2cm}}$

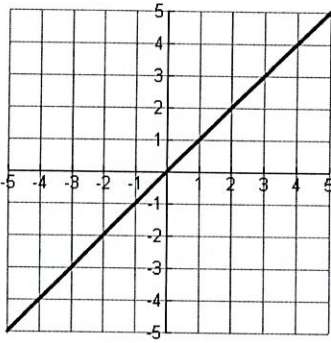
y-intercept: $(0, \)$



U5-7 Writing Equations of Lines

For each line, state the slope and where the line crosses the y-axis (y – intercept). Then, write the equation of the line.

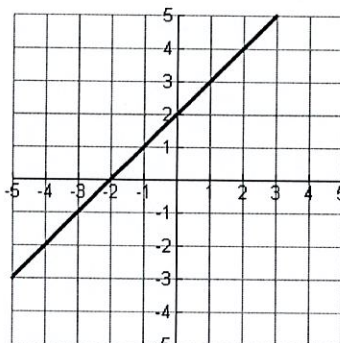
1.



$m = \underline{\hspace{2cm}}$

y-intercept: $(0, \underline{\hspace{1cm}})$

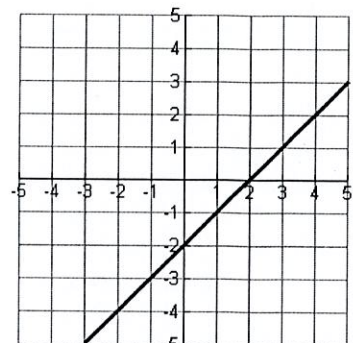
Eqn: $\underline{\hspace{4cm}}$



$m = \underline{\hspace{2cm}}$

y-intercept: $(0, \underline{\hspace{1cm}})$

Eqn: $\underline{\hspace{4cm}}$

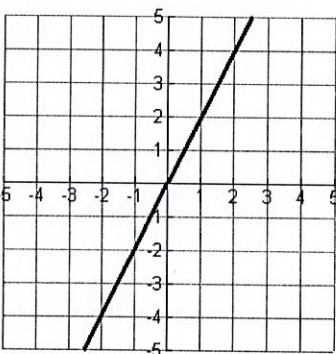


$m = \underline{\hspace{2cm}}$

y-intercept: $(0, \underline{\hspace{1cm}})$

Eqn: $\underline{\hspace{4cm}}$

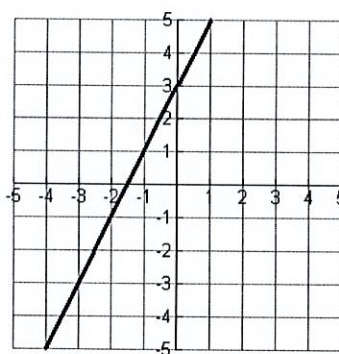
2.



$m = \underline{\hspace{2cm}}$

y-intercept: $(0, \underline{\hspace{1cm}})$

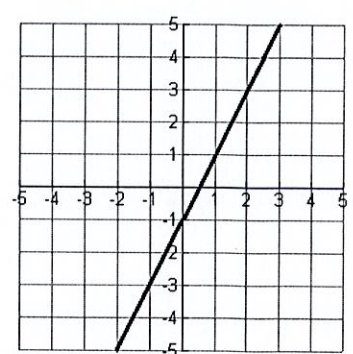
Eqn: $\underline{\hspace{4cm}}$



$m = \underline{\hspace{2cm}}$

y-intercept: $(0, \underline{\hspace{1cm}})$

Eqn: $\underline{\hspace{4cm}}$

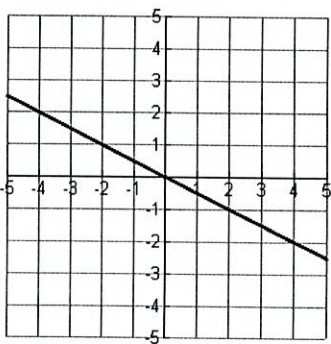


$m = \underline{\hspace{2cm}}$

y-intercept: $(0, \underline{\hspace{1cm}})$

Eqn: $\underline{\hspace{4cm}}$

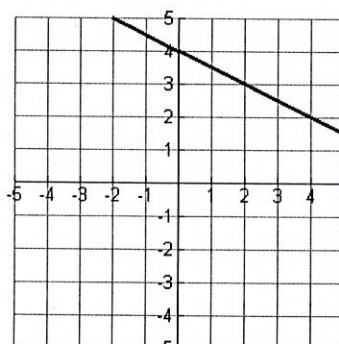
3.



$m = \underline{\hspace{2cm}}$

y-intercept: $(0, \underline{\hspace{1cm}})$

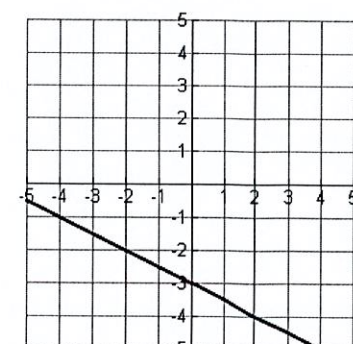
Eqn: $\underline{\hspace{4cm}}$



$m = \underline{\hspace{2cm}}$

y-intercept: $(0, \underline{\hspace{1cm}})$

Eqn: $\underline{\hspace{4cm}}$

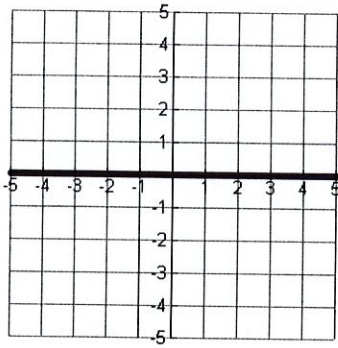


$m = \underline{\hspace{2cm}}$

y-intercept: $(0, \underline{\hspace{1cm}})$

Eqn: $\underline{\hspace{4cm}}$

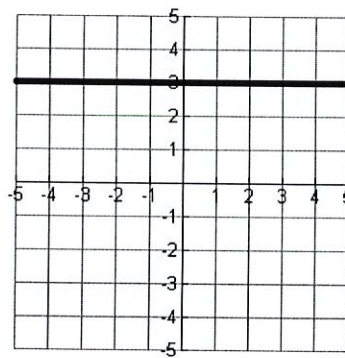
4.



$m = \underline{\hspace{2cm}}$

y-intercept: (0,)

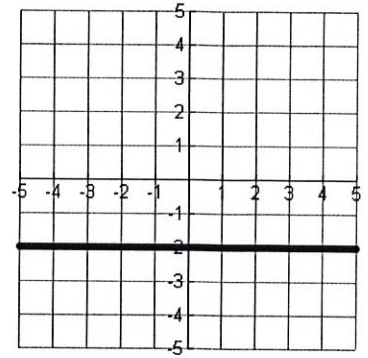
Eqn:



$m = \underline{\hspace{2cm}}$

y-intercept: (0,)

Eqn:

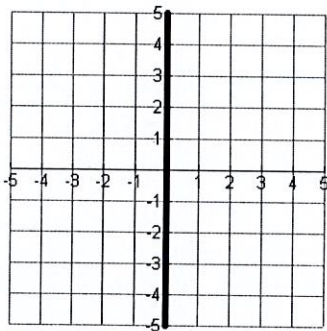


$m = \underline{\hspace{2cm}}$

y-intercept: (0,)

Eqn:

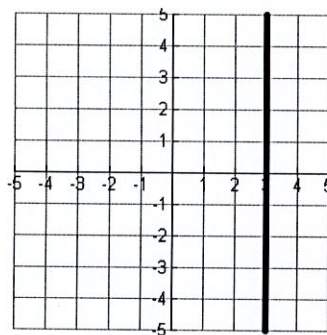
5.



$m = \underline{\hspace{2cm}}$

y-intercept: (0,)

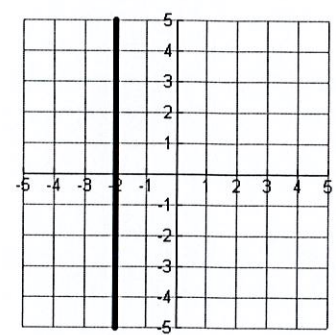
Eqn:



$m = \underline{\hspace{2cm}}$

y-intercept: (0,)

Eqn:

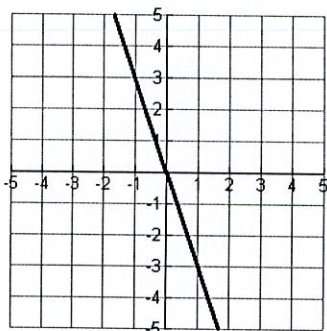


$m = \underline{\hspace{2cm}}$

y-intercept: (0,)

Eqn:

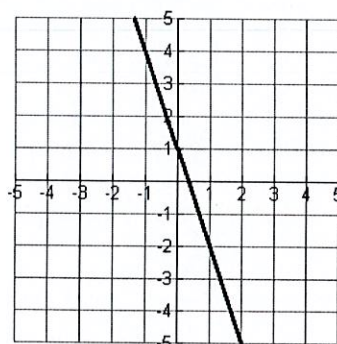
6.



$m = \underline{\hspace{2cm}}$

y-intercept: (0,)

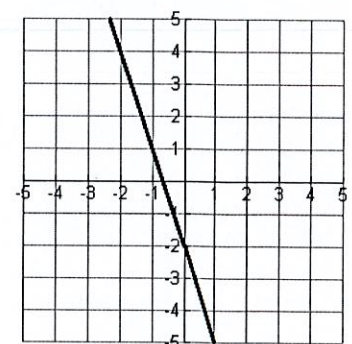
Eqn:



$m = \underline{\hspace{2cm}}$

y-intercept: (0,)

Eqn:



$m = \underline{\hspace{2cm}}$

y-intercept: (0,)

Eqn:

Writing Linear Equations

Date _____ Period _____

Write the slope-intercept form of the equation of each line.

1) $3x - 2y = -16$

2) $13x - 11y = -12$

3) $9x - 7y = -7$

4) $x - 3y = 6$

5) $6x + 5y = -15$

6) $4x - y = 1$

7) $11x - 4y = 32$

8) $11x - 8y = -48$

Write the standard form of the equation of the line through the given point with the given slope.

9) through: $(1, 2)$, slope = 7

10) through: $(3, -1)$, slope = -1

11) through: $(-2, 5)$, slope = -4

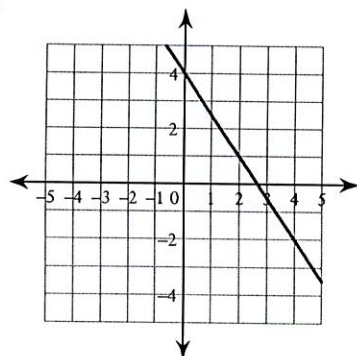
12) through: $(3, 5)$, slope = $\frac{5}{3}$

Writing Linear Equations

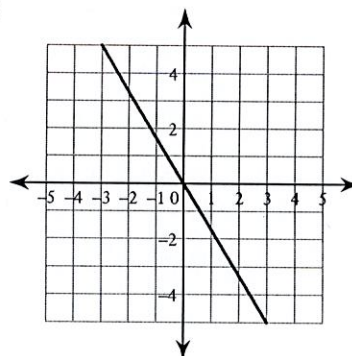
Date _____ Period _____

Write the slope-intercept form of the equation of each line.

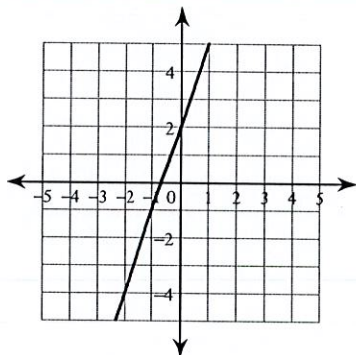
1)



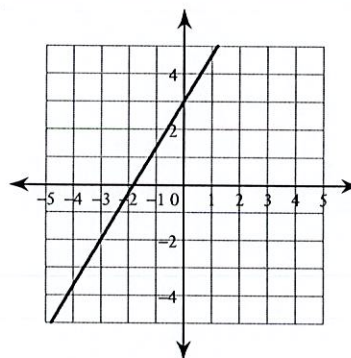
2)



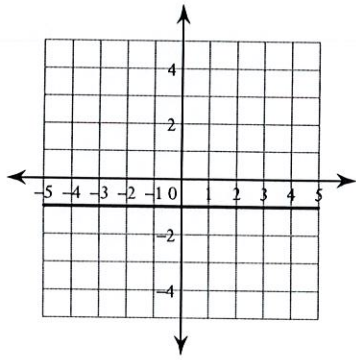
3)



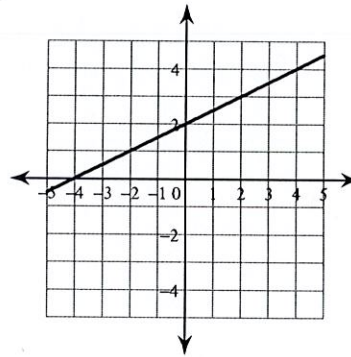
4)



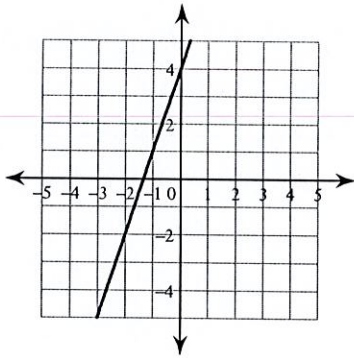
5)



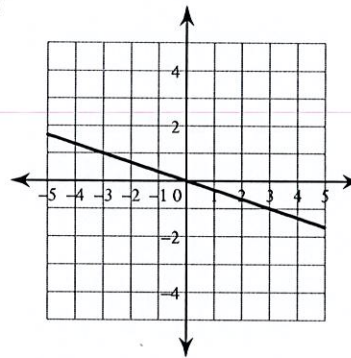
6)



7)



8)



Writing Equations given two points. Find the slope m and then find the Y intercept b .

© 2012 Kuta Software LLC. All rights reserved.

Write the slope-intercept form of the equation of the line through the given points.

1) through: $(2, 5)$ and $(0, 1)$

2) through: $(1, -5)$ and $(5, -1)$

3) through: $(0, 5)$ and $(-1, 2)$

4) through: $(3, 2)$ and $(5, 4)$

5) through: $(-2, 2)$ and $(-1, 3)$

6) through: $(0, -1)$ and $(1, 3)$

7) through: $(1, -4)$ and $(0, -1)$

8) through: $(-4, 4)$ and $(-5, 2)$

9) through: $(0, 2)$ and $(-4, -2)$

10) through: $(2, -5)$ and $(0, 1)$

11) through: $(-4, -2)$ and $(-5, 3)$

12) through: $(1, 1)$ and $(0, 4)$

13) through: $(-4, -5)$ and $(-3, 0)$

14) through: $(4, -5)$ and $(4, -3)$

15) through: $(-2, -3)$ and $(0, 3)$

16) through: $(0, -1)$ and $(3, 5)$

17) through: $(0, 5)$ and $(5, 3)$

18) through: $(-5, 0)$ and $(-4, 2)$

19) through: $(-4, -4)$ and $(-2, 2)$

20) through: $(2, -3)$ and $(3, -1)$