

Math 9 Adapted LG 10
Graphing an Equation – Using a Table of Values

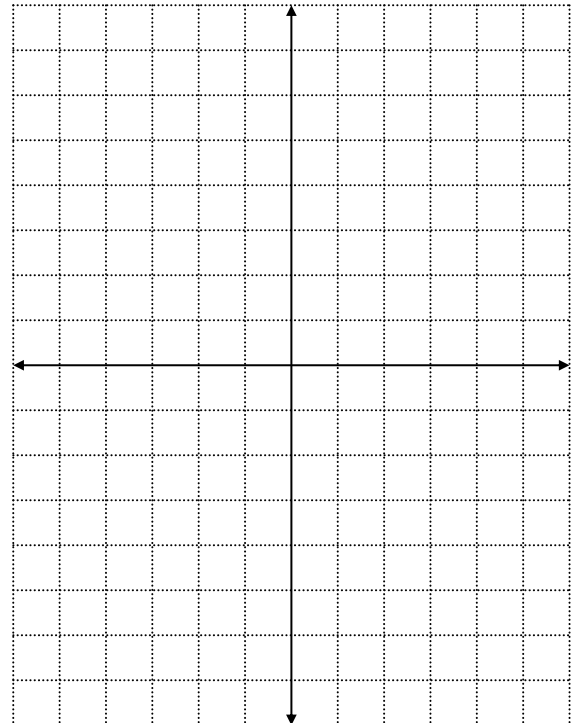
Step 1: Choose some values for 'x'. Choose easy numbers like 2, 1, 0, -1, -2. Write these values in your table.

Step 2: Substitute these 'x' values into the equation one at a time and calculate the 'y' values. Record these beside the appropriate 'x' value.

Step 3: Plot on graph. Label 'x' axis - is the horizontal (left/right) and the 'y' axis - is the vertical (up/down).

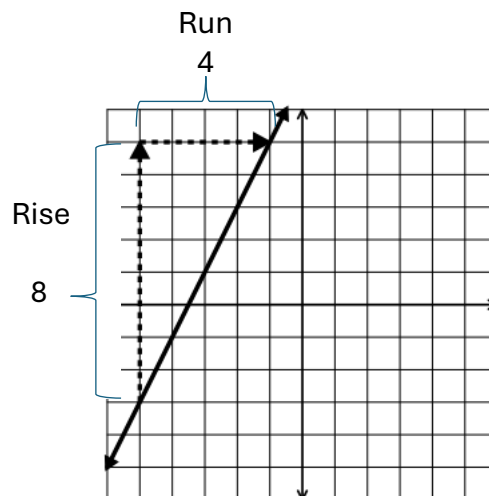
Step 4: Using a straight edge draw a straight line through these points, extending across the whole grid. Put arrows on both ends of your line.

Example #1: $y = 3x - 2$

[illegible]

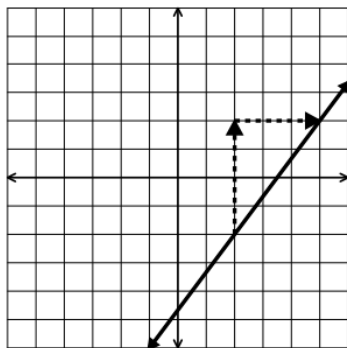
LG 10 – Determine the slope of a line

$$\text{Slope} = \frac{\text{Rise (change in y values)}}{\text{Run (change in x values)}} = \frac{8}{4} = \frac{2}{1} = 2$$



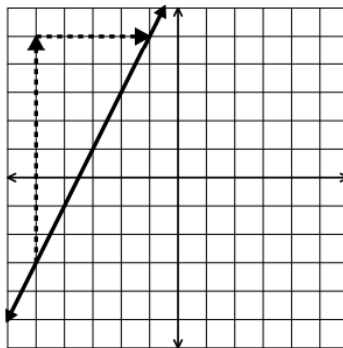
Find the slope of the lines on the graphs below:

(1)



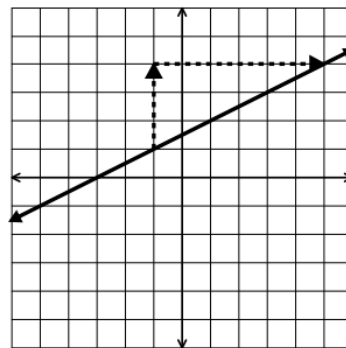
$$\text{Slope} = \frac{\text{Rise}}{\text{Run}} =$$

(2)



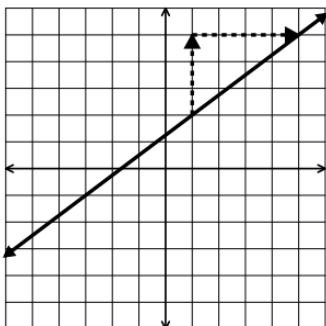
$$\text{Slope} = \frac{\text{Rise}}{\text{Run}} =$$

(3)



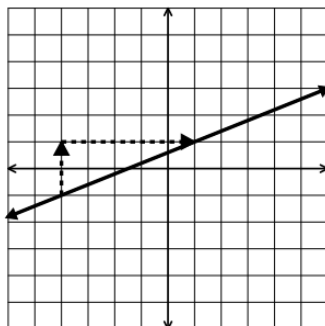
$$\text{Slope} = \frac{\text{Rise}}{\text{Run}} =$$

(4)



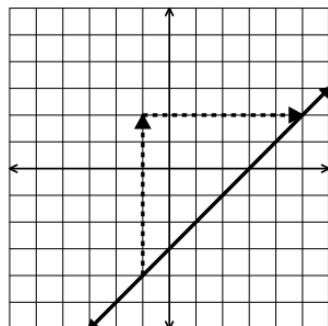
$$\text{Slope} = \frac{\text{Rise}}{\text{Run}} =$$

(5)

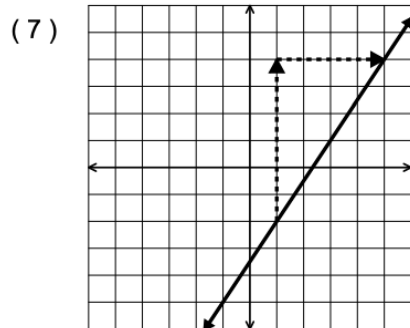


$$\text{Slope} = \frac{\text{Rise}}{\text{Run}} =$$

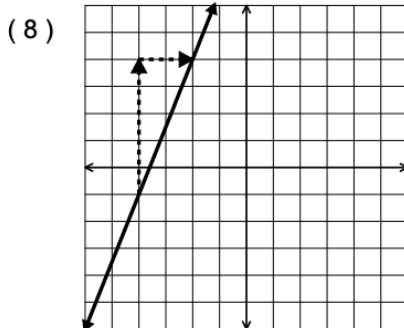
(6)



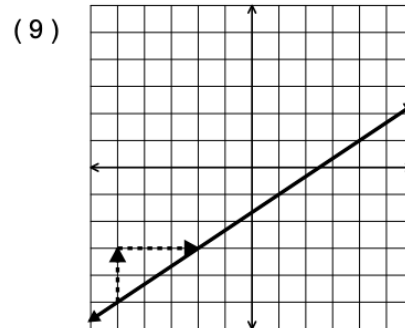
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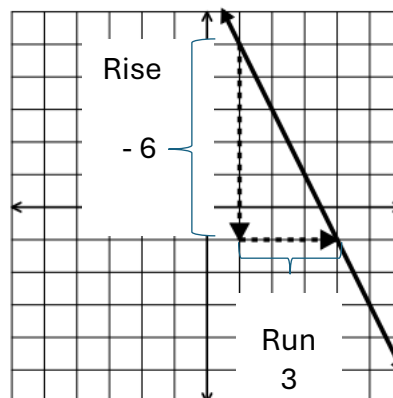


$$\text{Slope} = \frac{\text{Rise}}{\text{Run}} =$$

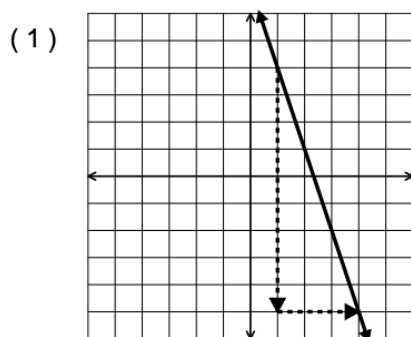
Sometimes a slope can be negative.

$$\text{Slope} = \frac{\text{Rise}}{\text{Run}} = \frac{-6}{3} = -2$$

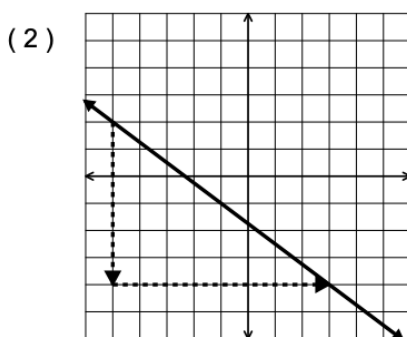
Negative slopes always look like they are running downhill.



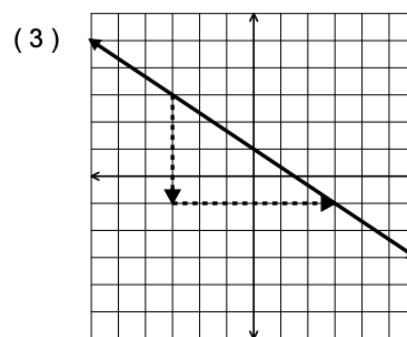
Find the slope of the lines on the graphs below:



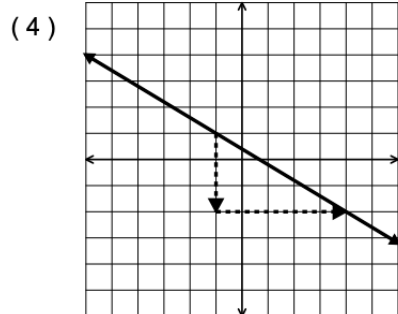
$$\text{Slope} = \frac{\text{Rise}}{\text{Run}} =$$



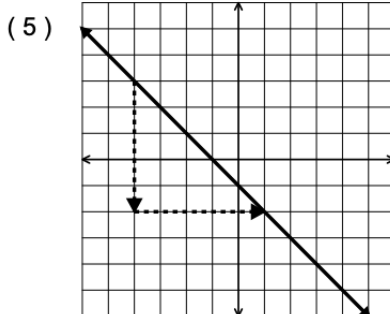
$$\text{Slope} = \frac{\text{Rise}}{\text{Run}} =$$



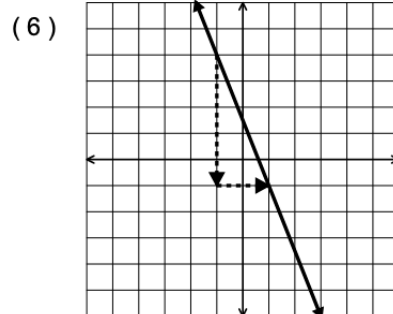
$$\text{Slope} = \frac{\text{Rise}}{\text{Run}} =$$



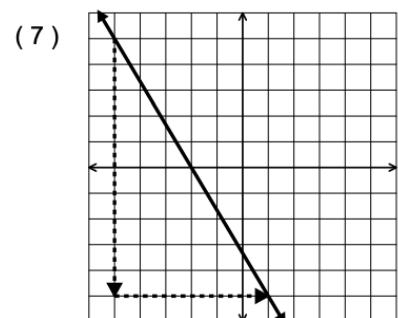
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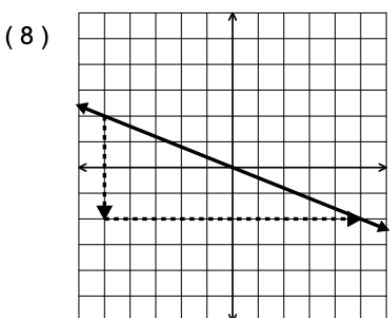
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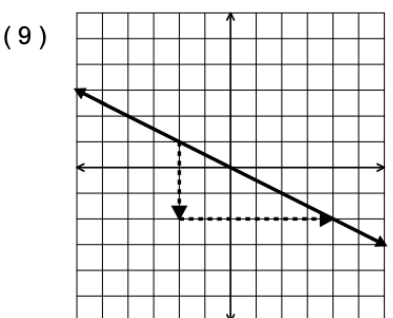
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Check your answers!!!

Answers – Positive Slope Questions		
$\frac{4}{3}$	2	$\frac{1}{2}$
$\frac{3}{4}$	$\frac{2}{5}$	1
$\frac{3}{2}$	$\frac{5}{2}$	$\frac{2}{3}$

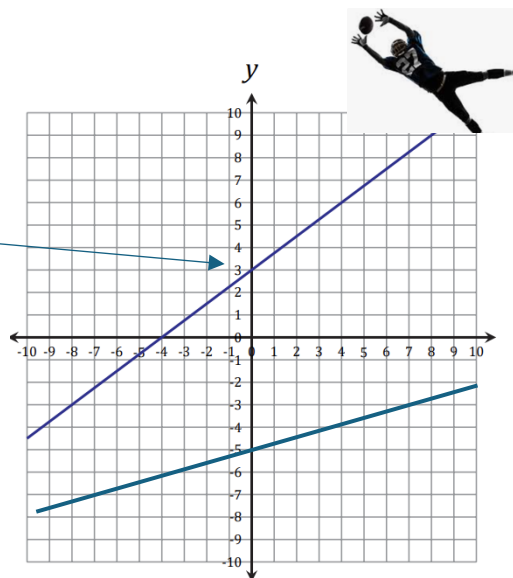
Answers – Negative Slope Questions		
$-\frac{3}{1}$	$-\frac{3}{4}$	$-\frac{2}{3}$
$-\frac{3}{5}$	-1	$-\frac{5}{2}$
$-\frac{5}{3}$	$-\frac{2}{5}$	$-\frac{1}{2}$

LG 10 Determining the Y-intercept

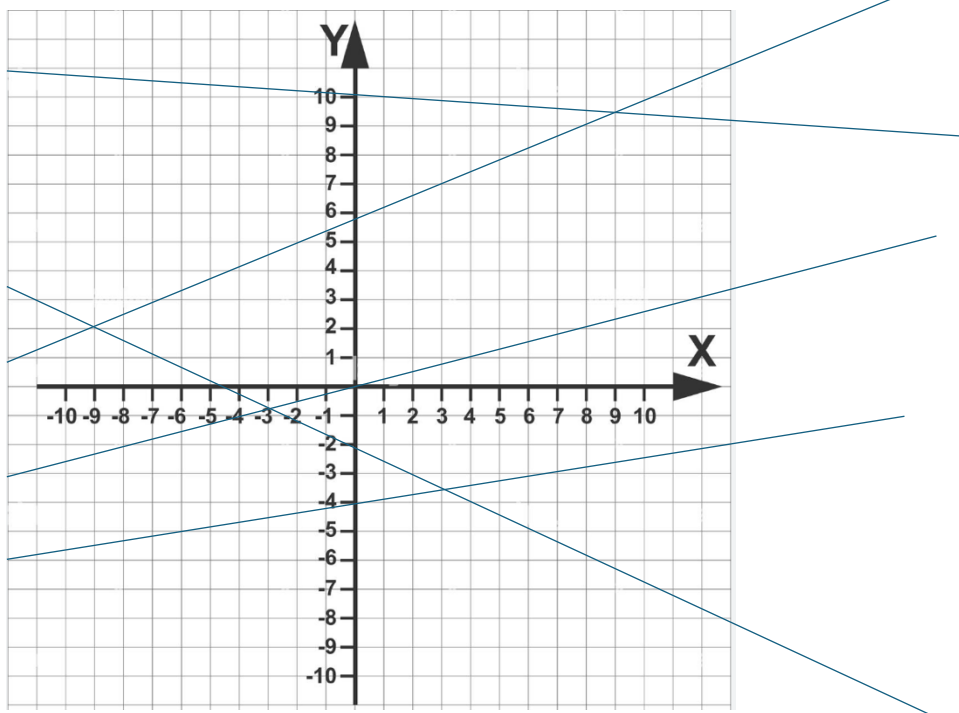
The y-intercept is the value of y when the line crosses the y axis.

For this line, the value is 3.

It may also be negative, for instance with this line the value is - 5



Find the y-intercepts of the lines on the graph below. And label them at the end of each line.



LG 10 Linear Equations

A linear equation can be made for every line:

$$y = mx + b$$

$\swarrow$ m represents the slope $\nwarrow$ b represents the y-intercept

Below are equations for 5 different lines:

$y = 3x + 2$	$y = -5x + 9$	$y = 2x - 8$	$y = \frac{7}{9}x + 3$	$y = -\frac{1}{2}x + 7$
$m = 3$	$m = -5$	$m = 2$	$m = \frac{7}{9}$	$m = -\frac{1}{2}$
$b = 2$	$b = 9$	$b = -8$	$b = 3$	$b = 7$

Practice questions:

Determine the slope and y-intercept values of the following equations:

1 $y = -6x + 3$ Slope: _____ y-intercept: _____	2 $y = \frac{3}{2}x + 3$ Slope: _____ y-intercept: _____
3 $y = 4x + 5$ Slope: _____ y-intercept: _____	4 $y = -2x + 20$ Slope: _____ y-intercept: _____

$$5 \quad y = -\frac{2}{3}x - 2$$

Slope: _____ y-intercept: _____

$$6 \quad y = x - 18$$

Slope: _____ y-intercept: _____

$$7 \quad y = \frac{5}{3}x - 2$$

Slope: _____ y-intercept: _____

$$8 \quad y = \frac{4}{5}x - 1$$

Slope: _____ y-intercept: _____

$$9 \quad y = -\frac{8}{3}x + 4$$

Slope: _____ y-intercept: _____

$$10 \quad y = -4x + \frac{1}{4}$$

Slope: _____ y-intercept: _____

Write the equation the lines with the following slopes and y-intercepts:

Example: $m = 5$ $b = 9$ $y = 5x + 9$

1. $m = 4$ $b = 2$ $y =$

2. $m = -5$ $b = 9$ $y =$

3. $m = \frac{1}{2}$ $b = -2$ $y =$

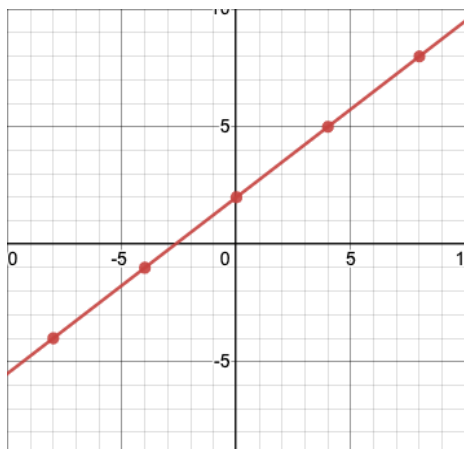
4. $m = \frac{-7}{8}$ $b = 3$ $y =$

5. $m = \frac{-4}{11}$ $b = 2$ $y =$

6. $m = 6$ $b = \frac{1}{2}$ $y =$

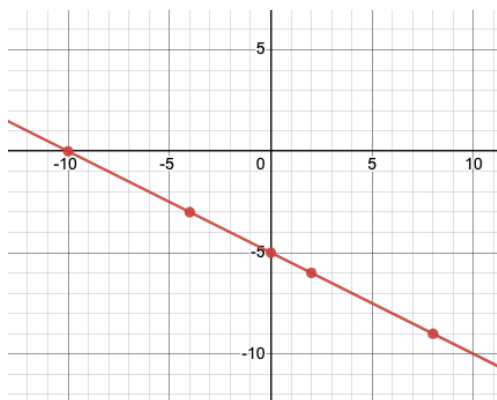
LG 10 making an equation from a graph

$$y = mx + b$$



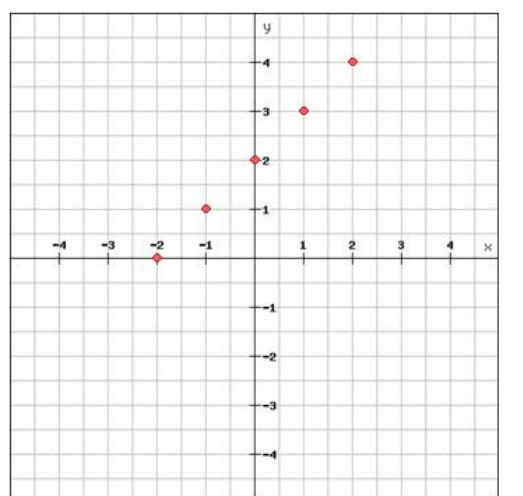
For this graph: $b = \underline{\hspace{2cm}}$ & $m = \frac{\text{rise}}{\text{run}} =$

The equation for this line is:



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The equation for this line is:

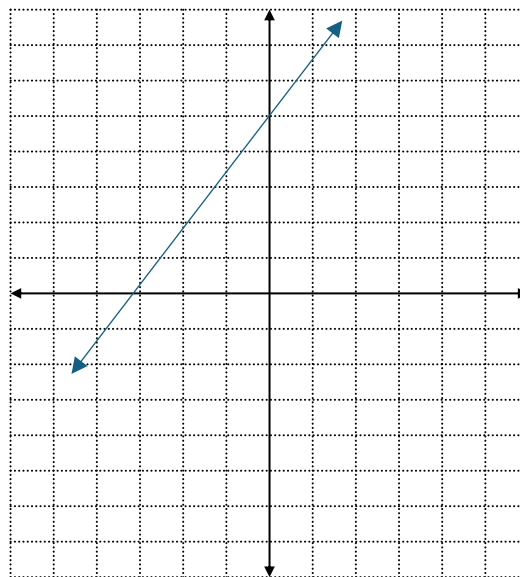


For this graph: $b = \underline{\hspace{2cm}}$ & $m = \frac{\text{rise}}{\text{run}} =$

The equation for this line is:

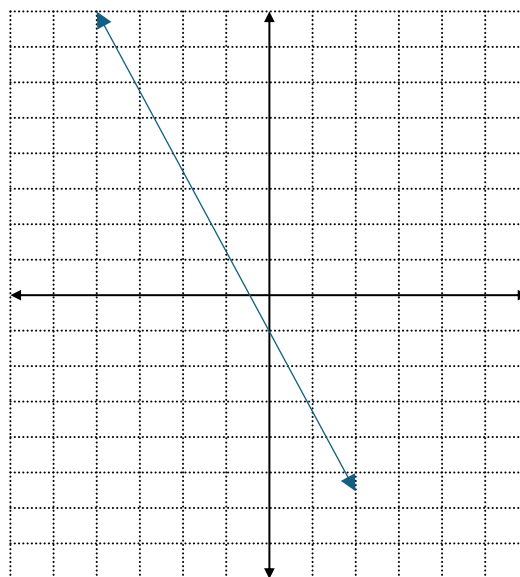
For this graph: $b = \underline{\hspace{2cm}}$ & $m = \frac{\text{rise}}{\text{run}} =$

The equation for this line is:



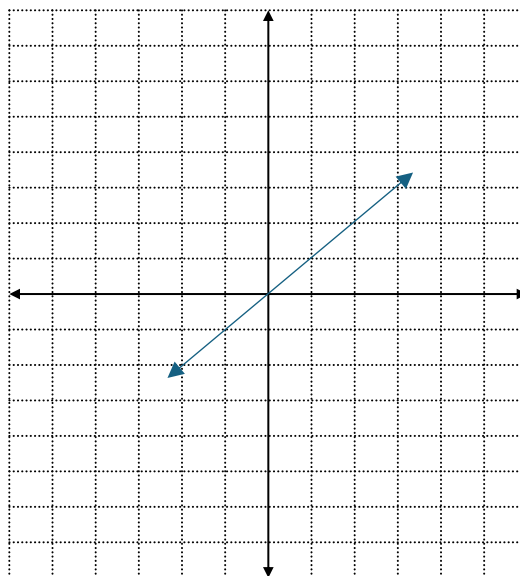
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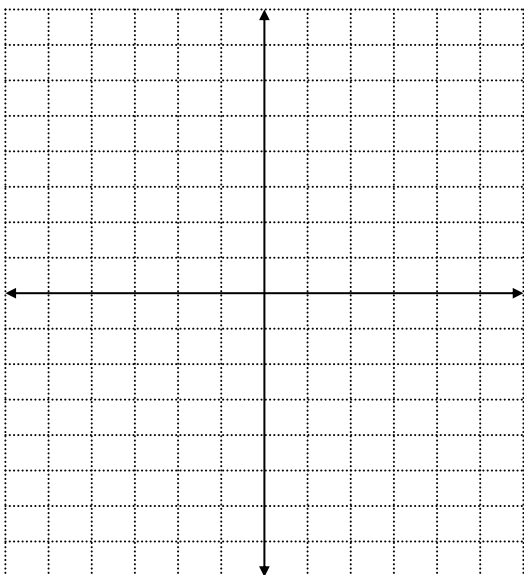


Graphing a Line Using $y = mx + b$

Identify the slope and y-intercept for each equation, then graph the lines.

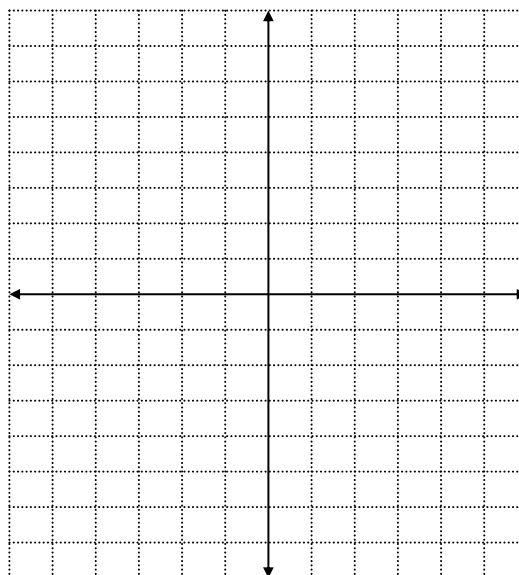
1) $y = \frac{3}{2}x - 4$ $m = \underline{\hspace{2cm}}$

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



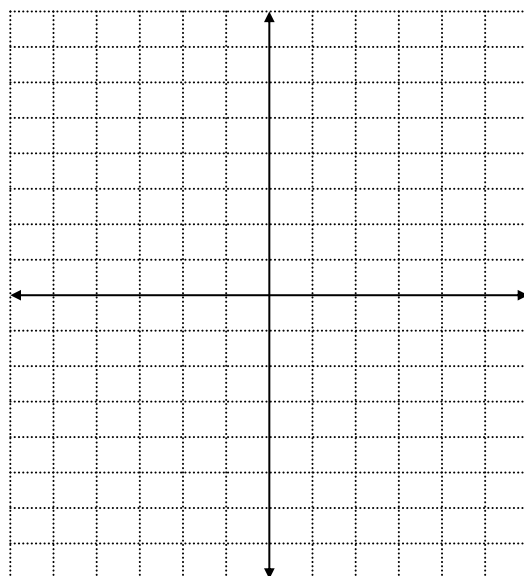
2) $y = -2x + 3$ $m = \underline{\hspace{2cm}}$

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



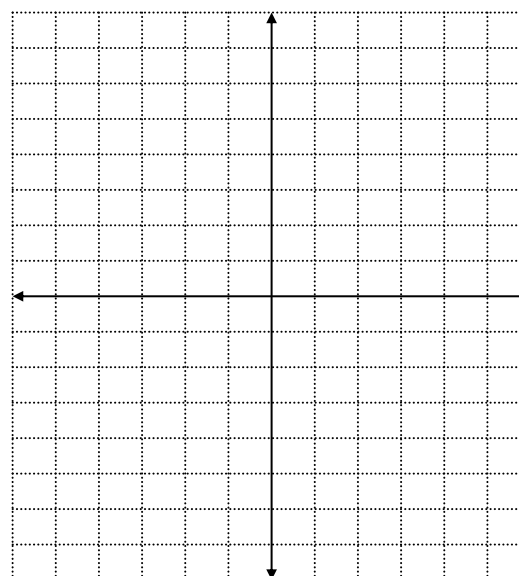
3) $y = \frac{1}{3}x - 1$ $m = \underline{\hspace{2cm}}$

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



4) $y = -\frac{3}{4}x$ $m = \underline{\hspace{2cm}}$

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



Mini Murder Mystery

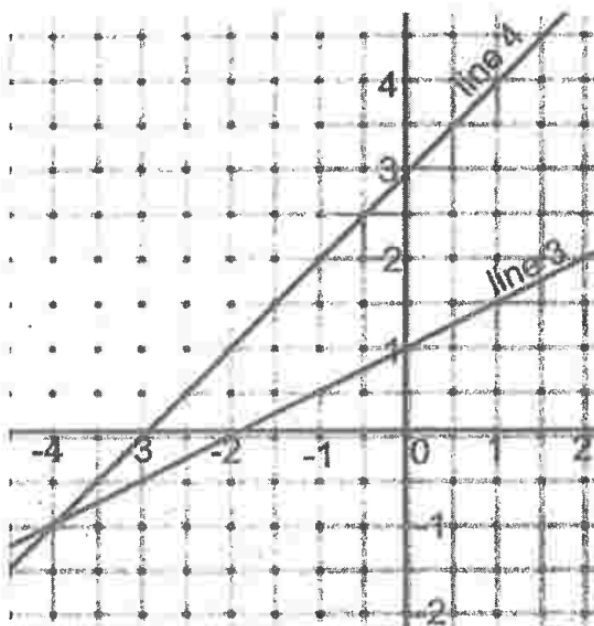
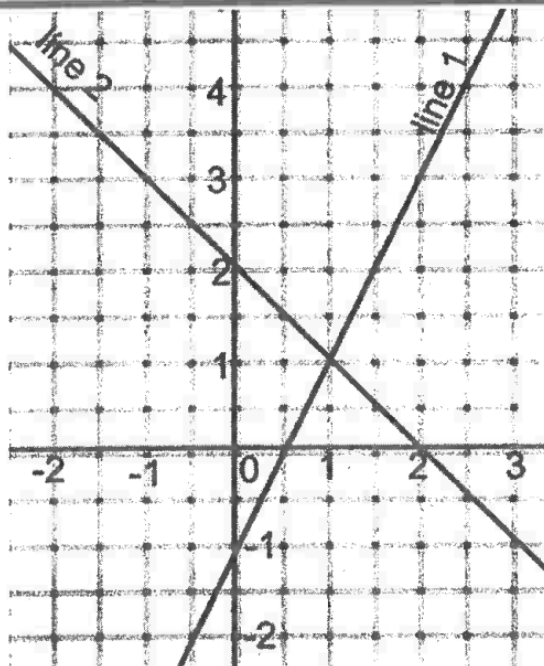
Straight line graphs

One of the following 6 people has murdered one of the others.

Each has made 4 statements about these 2 graphs.

The murderer has made 3 errors, the victim made 0 errors.

The other suspects made 1 or 2 errors



Claire says

- Line 1 is steeper than line 3
- Slope of line 3 is 0.5
- $(1, 0)$ is on line 3
- $(2, 3)$ is on line 1



Ashley says

- Slope of line 3 is 2
- $(0.5, 0)$ is on line 1
- $(4, -2)$ is on line 2
- Line 4 would be parallel to $y = x$



Duncan says

- Lines 1 & 2 are perpendicular
- The slope of line 4 is 3
- $(0, -1)$ is on line 1
- Line 3 is steeper than line 4



Jack says

- The slope of line 2 is -1
- The slope of line 3 is 2
- $(2, 5)$ is on line 4
- $(0, 2)$ and $(2, 0)$ are both on line 2



Josh says

- Slope of line 1 is 2
- $(-2, 1)$ is on line 4
- $(0, -3)$ is on line 4
- $(-1, -4)$ is on lines 3 & 4



Lucy says

- The slope of line 4 is 1
- The slope of line 2 is -1
- The y intercept of Line 3 is 1
- $(4, 3)$ would be on line 3



Who?

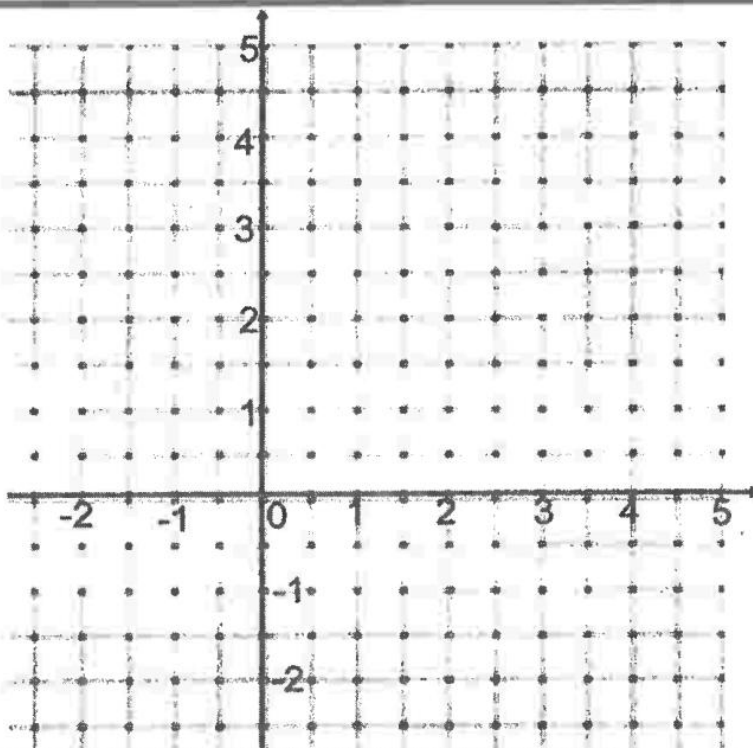
Accusation: _____ murdered _____

Where?

The murder took place at the coordinates described by the following.

Draw the line and think about coordinates on the line.

Mark your answer with a large "X"



- It is on the line $y = 2x - 5$
- The y coordinate is less than the x coordinate
- The sum of the coordinates is 8.5

Why? Solve the puzzle below to find out!

a	b	c	d	e
Slope of $y = 2x - 1$	Slope of $4x + y = -9$	Slope of $y = 5x + 6$	Slope of $y = 3x + 1$	Slope of $x + 4y = 20$
f	g	h	i	j
Slope of $y = 0.6x$	Slope of $y = x - 1$	Slope of $3x + y = 2$	Slope of $y = 6x - 7$	Slope of $y = 20x - 10$
k	l	m	n	o
Slope of $y = -1.2x - 1$	Slope of $5x + 2y = 10$	Slope of $y = -2x + 3$	Slope of $y = 0.5x + 6$	Slope of $y = -12x + 3$

p	q	r	s	t
Slope of $y = -x + 8$	Slope of $y = 8x - 6$	Slope of $2y - 3x = -2$	Slope of $y = 10x$	Slope of $y = 2.5x + 3$
u	v	w	x	y or z
Slope of $y = 3$	Slope of $x + 2y = 2$	Slope of $y = -7x$	Slope of $y = 9x + 10$	Slope of $y = 4x + 5$

-4	$-\frac{1}{2}$	5	2	0	10	$-\frac{1}{2}$	10	-3	$-\frac{1}{2}$
6	10	10	4	-2	-2	$-\frac{1}{2}$	2.5	$1\frac{1}{2}$	6
5	2	-2.5							