

Good morning!

1. "Here"
2. Begin Unit 1 Part 2
3. Notes on Graphing Linear Functions
4. MI Diagnostic Test

<https://h100003989.education.scholastic.com>

5. Upload Practice (Evens) to CTLS

DeltaMath

## Unit 1 – Part 2

## Linear Functions

Monday	Tuesday	Wednesday	Thursday	Friday
Jan. 18 <sup>th</sup>	Jan. 19 <sup>th</sup>	Jan. 20 <sup>th</sup>	Jan. 21 <sup>st</sup>	Jan. 22 <sup>nd</sup>
No School	Unit 1 Part 1 Test	Unit 1 Part 1 Test	Graphing Linear Functions	Characteristics of Linear Functions
Jan. 25 <sup>th</sup>	Jan. 26 <sup>th</sup>	Jan. 27 <sup>th</sup>	Jan. 28 <sup>th</sup>	Jan. 29 <sup>th</sup>
Function Notation	PSAT Day – No Class	Arithmetic Sequences	Review Quiz due at midnight	Solving Systems by Graphing
Feb. 1 <sup>st</sup>	Feb. 2 <sup>nd</sup>	Feb. 3 <sup>rd</sup>	Feb. 4 <sup>th</sup>	Feb. 5 <sup>th</sup>
Solving Systems by Substitution	Solving Systems by Elimination Quiz	Quiz due at midnight	Systems of Equations Word Problems	Graphing Systems of Inequalities
Feb. 8 <sup>th</sup>	Feb. 9 <sup>th</sup>	Feb. 10 <sup>th</sup>	Feb. 11 <sup>th</sup>	Feb. 12 <sup>th</sup>
Graphing Systems of Inequalities	Review Test	Test due at midnight	Factoring by GCF	Factoring

## SCHOOLIES

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$$y = mx + b$$

### Graphing Linear Functions

In order to graph a linear function, you must know two things: the y-intercept and the slope.

#### Y-Intercept

The y-intercept is the point on the graph where the line crosses the y-axis.

The y-intercept is represented by the variable b and can be found at the point (0, b).

#### Slope

The slope is the constant rate of change of the rise to the run.

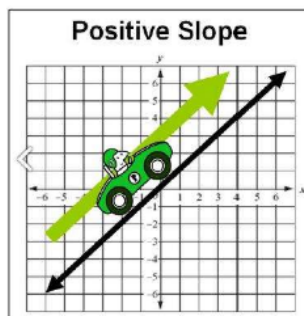
The slope is represented by the variable m. If the slope is given to you as a whole number, you can make it a fraction by putting the number over 1.

#### 4 Types of Slope

##### (+) Positive Slope

Examples:  
 $\frac{3}{2}$  or 4

Going up a hill

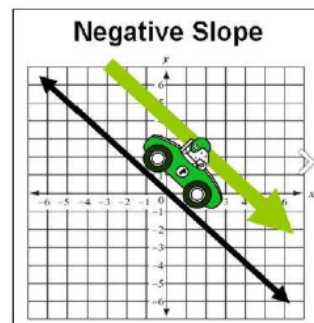


##### (-) Negative Slope

Examples:

$-\frac{1}{2}$  or -4

Going down a hill

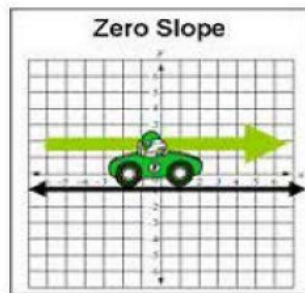


##### Zero Slope → no up or down

$$y = \#$$

Y-values are the same  
Going in a straight line (No Vertical Change)

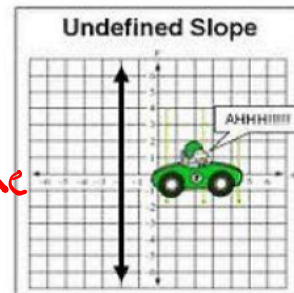
horizontal  
 $y = \#$



##### Undefined Slope

X-values are the same  
Falling off a cliff  
(No Horizontal Change)

vertical line  
 $x = \#$



#### Slope of a Line

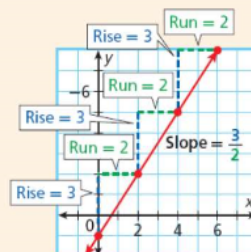
The **rise** is the difference in the **y-values** of two points on a line.

The **run** is the difference in the **x-values** of two points on a line.

The **slope** of a line is the ratio of rise to run for any two points on the line.

$$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{\text{change in } y}{\text{change in } x}$$

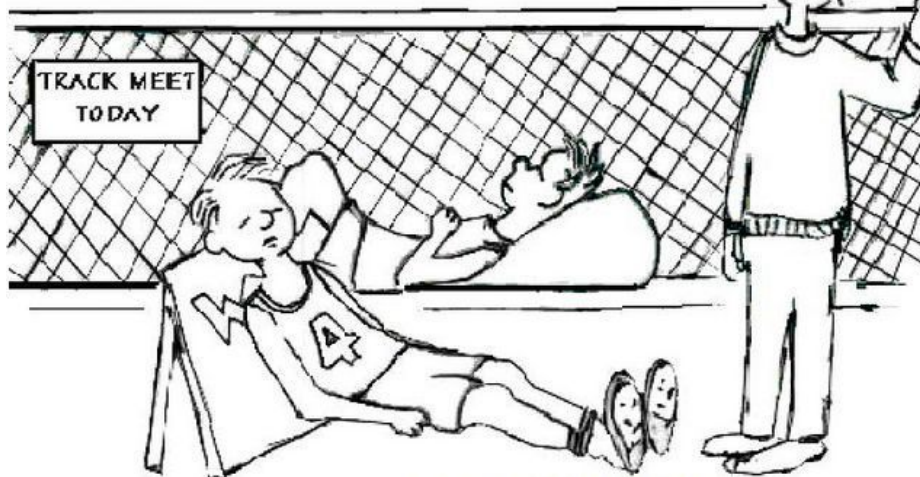
(Remember that **y** is the **dependent variable** and **x** is the **independent variable**.)



$$m = \frac{\text{RISE } (\Delta y)}{\text{RUN } (\Delta x)}$$

# SLOPE

You have to RISE  
before you  
can RUN!



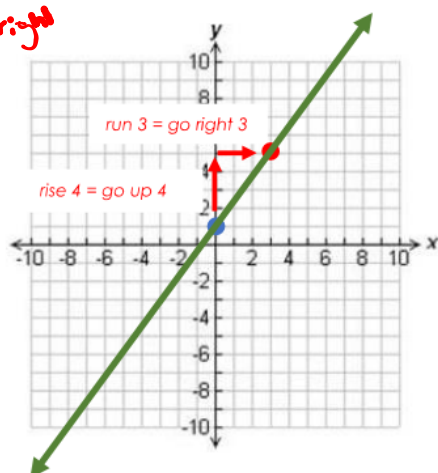
$m$   $b$   
Slope-Intercept Form:  $y = mx + b$   
 $y = mx + b$

**Step 1:** Identify the y-intercept ( $b$ ) and plot the point  $(0, b)$ .

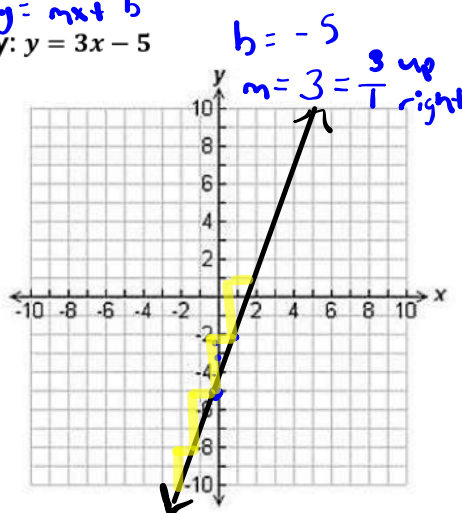
**Step 2:** Use the slope ( $m$ ) to find a second point:  $m = \frac{\text{rise}}{\text{run}}$ . (Remember to make whole numbers into fractions). You can do this several times.

**Step 3:** Connect the points.

Example:  $y = \frac{4}{3}x + 1$   
 $m = \frac{4}{3}$   
 $b = 1$   
 y-int:  $(0, 1)$   
 slope =  $\frac{\text{rise } 4}{\text{run } 3}$



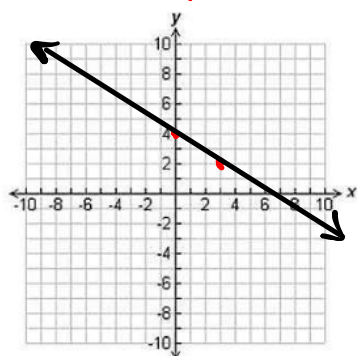
$y = mx + b$   
 You Try:  $y = 3x - 5$



### More Practice

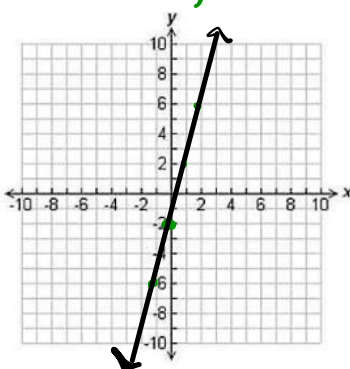
$y = -\frac{2}{3}x + 4$

$b = 4$  → down  
 $m = -\frac{2}{3}$  → right



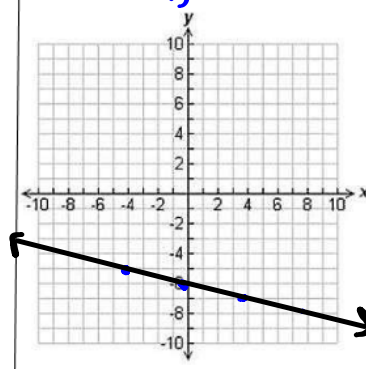
$y = 4x - 2$

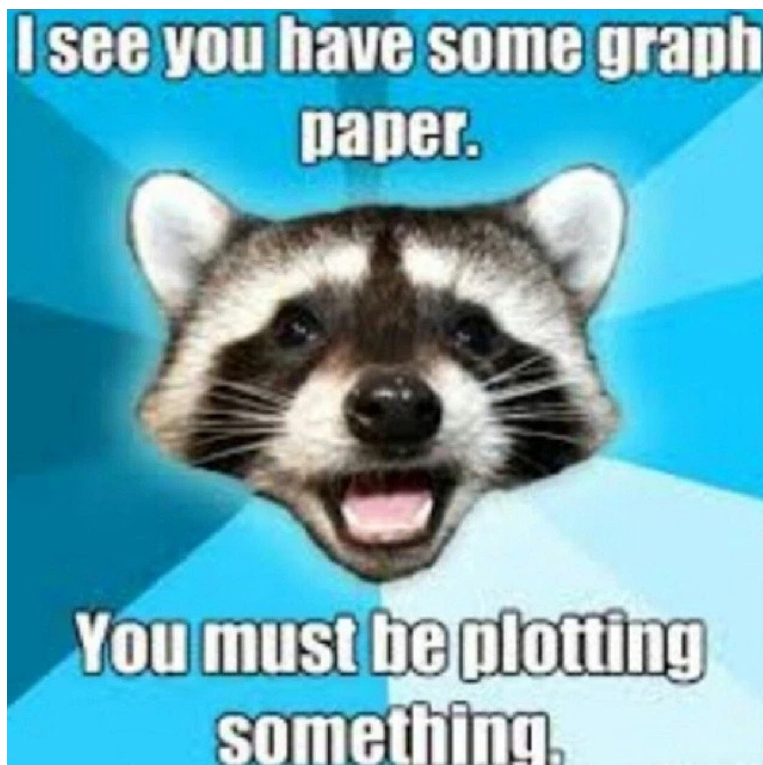
$b = -2$   
 $m = 4 = \frac{4}{1}$  up  
 right



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

$b = -6$   
 $m = -\frac{1}{4}$  down  
 right



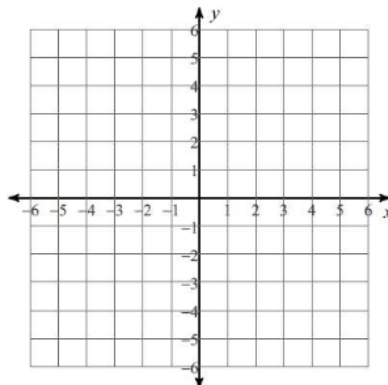
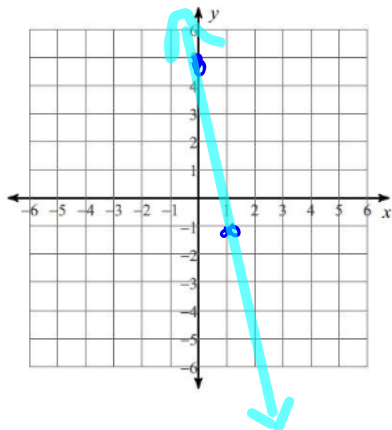


## Graphing in Slope-Intercept Form Practice

1)  $y = -6x + 5$

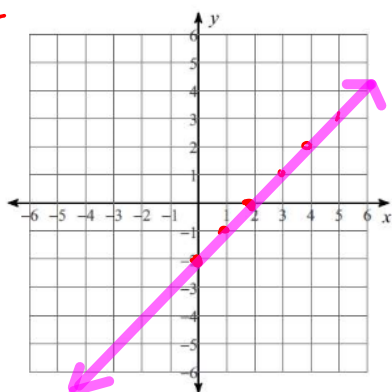
$b = 5 \quad m = -6 = -\frac{6}{1}$

2)  $y = \frac{6}{5}x + 4$

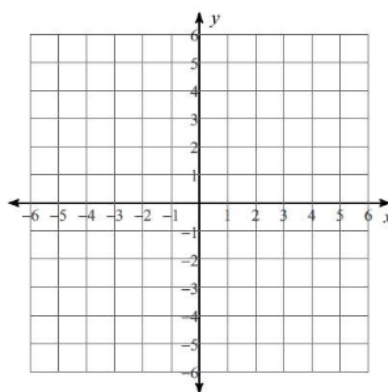


3)  $y = x - 2$

$b = -2$   
 $m = 1$



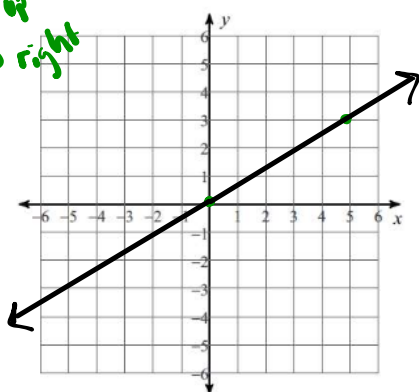
4)  $y = -\frac{3}{2}x - 4$



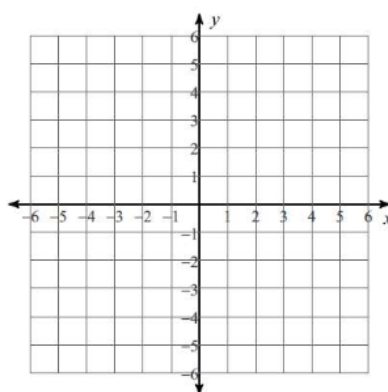
5)  $y = \frac{3}{5}x + 0$

$m = \frac{3}{5}$  right

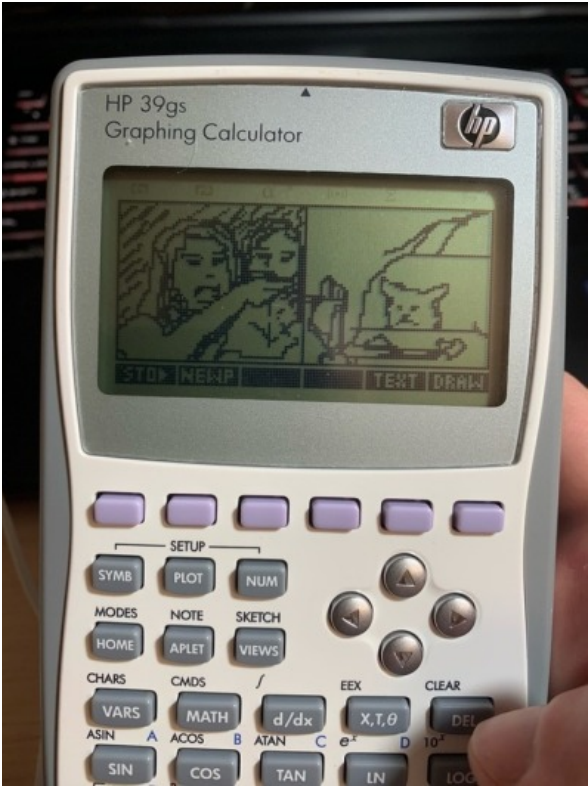
$b = 0$



6)  $y = -x - 2$

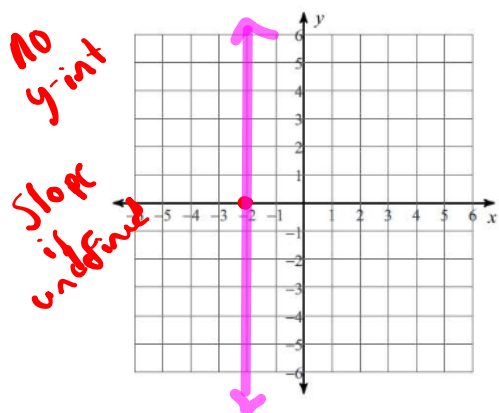




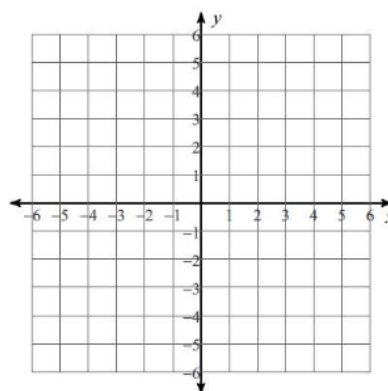


7)  $x = -2$

$x = -2$

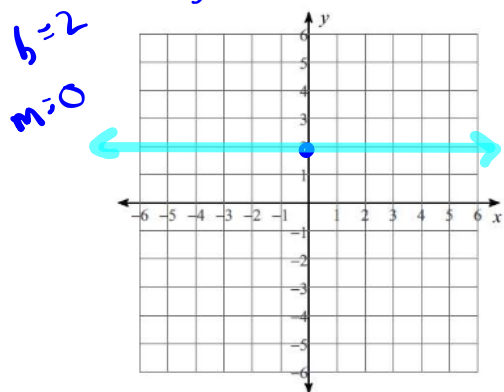


8)  $y = -\frac{1}{5}x - 4$

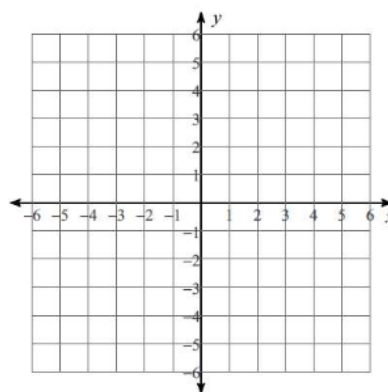


9)  $y = 2$

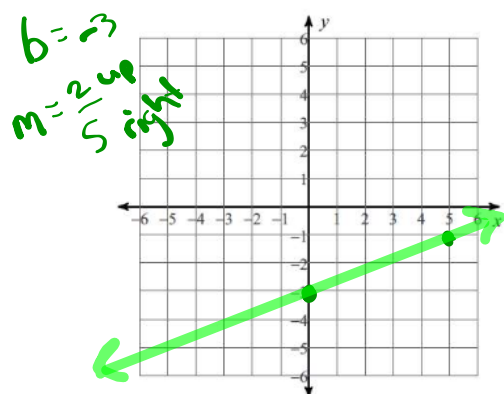
$y = 2$



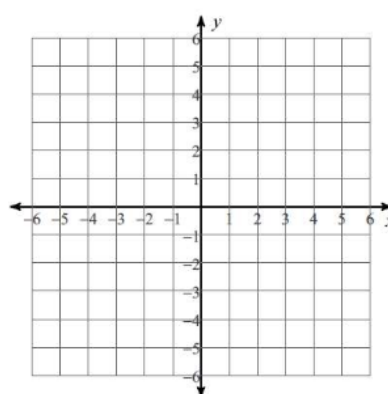
10)  $y = 5x$



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



12)  $x = 3$



## Graphing in Standard Form

**Standard Form:**  $Ax + By = C$ **Step 1:** Convert from standard form to slope-intercept form (solve for y)**Step 2:** Follow the same steps from graphing in slope-intercept form (pa. 3)**Example:**  $2x + 6y = 12$ 

$$\begin{array}{r}
 2x + 6y = 12 \\
 -2x \quad -2x \\
 \hline
 6y = -2x + 12 \\
 6y = -2x + 12 \\
 \hline
 6 \qquad 6 \\
 y = -\frac{2}{6}x + \frac{12}{6} \\
 y = -\frac{1}{3}x + 2
 \end{array}$$

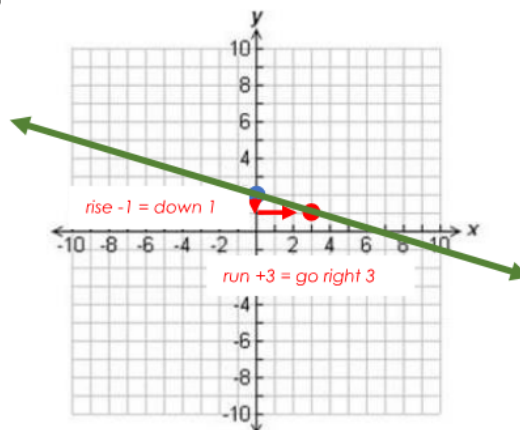
S  
A  
D  
V  
M  
E  
P

$$b = 2$$

$$y\text{-int: } (0, 2)$$

$$m = -\frac{1}{3}$$

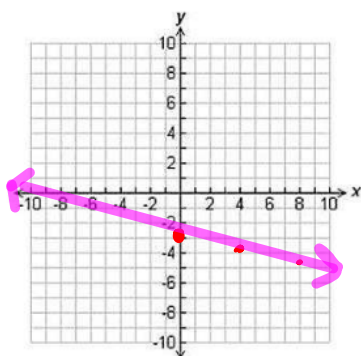
$$m = \frac{\text{rise}-1}{\text{run}+3} = \frac{\text{down } 1}{\text{right } 3}$$

**Practice**

$$\begin{array}{r}
 2x + 8y = -24 \\
 -2x \quad -2x \\
 \hline
 8y = -2x - 24 \\
 \frac{8y}{8} = \frac{-2x - 24}{8} \\
 y = -\frac{1}{4}x - 3
 \end{array}$$

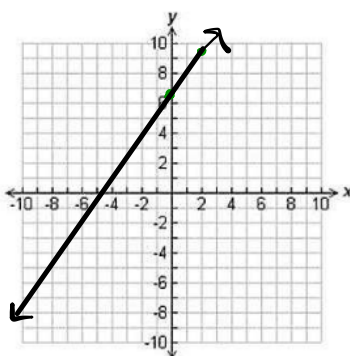
$$y = mx + b$$

$$m = -\frac{1}{4} \quad b = -3$$



$$\begin{array}{r}
 3x - 2y = -12 \\
 -3x \quad -3x \\
 \hline
 -2y = -3x - 12 \\
 \frac{-2y}{-2} = \frac{-3x - 12}{-2} \\
 y = \frac{3}{2}x + 6
 \end{array}$$

$$m = \frac{3}{2} \text{ up } \frac{3}{2} \text{ right} \quad b = 6$$

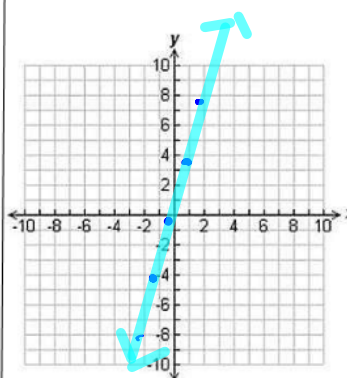
S  
A  
D  
M  
E  
P

$$\begin{array}{r}
 4x - y = 1 \\
 -4x \quad -4x \\
 \hline
 -y = -4x + 1 \\
 \frac{-y}{-1} = \frac{-4x + 1}{-1}
 \end{array}$$

$$y = 4x - 1$$

$$y = 4x - 1$$

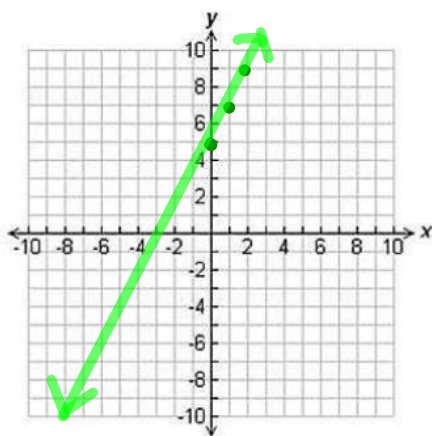
$$m = \frac{4}{1} \text{ up } 4 \text{ right } 1 \quad b = -1$$



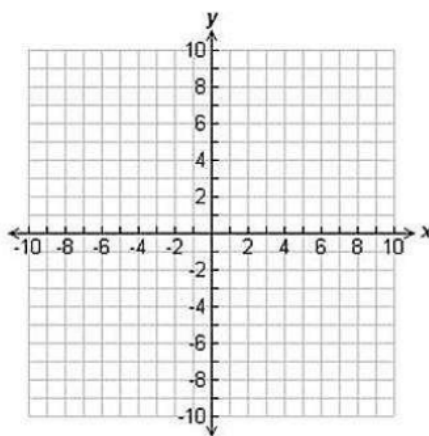
## Graphing in Standard Form Practice

1)  $y = 2x + 5$

$$m = 2, \quad b = 5$$

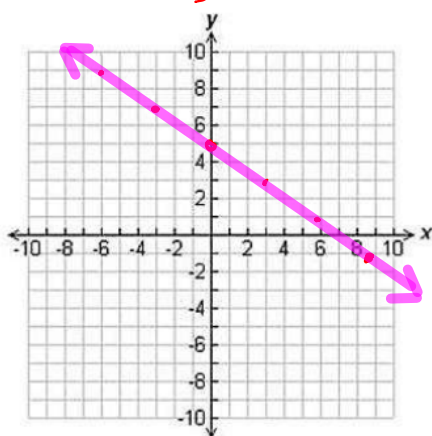


2)  $2y - x = 6$

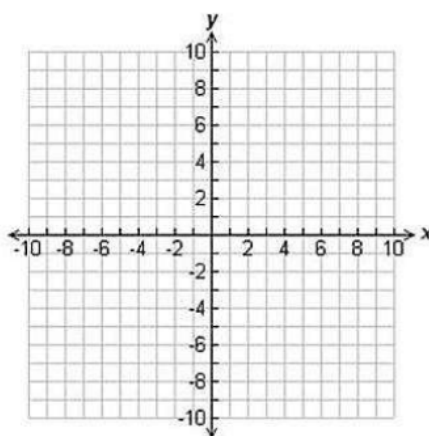


3)  $2x + 3y = 15$

$$\begin{array}{r} -2x \quad -2x \\ \hline 3y = -2x + 15 \\ \hline 3 \quad 3 \\ y = -\frac{2}{3}x + 5 \end{array}$$



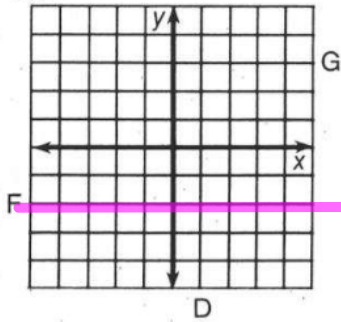
4)  $3(x + 2) - y + 2 = 14$



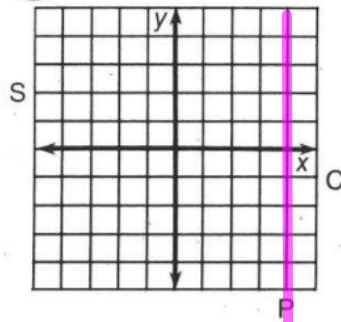
## Why Did the Cow Want a Divorce?

Graph each equation below. The graph, if extended, will cross a letter. Look for this letter in the string of letters near the bottom of the page and CROSS IT OUT each time it appears. When you finish, write the remaining letters in the rectangle at the bottom of the page.

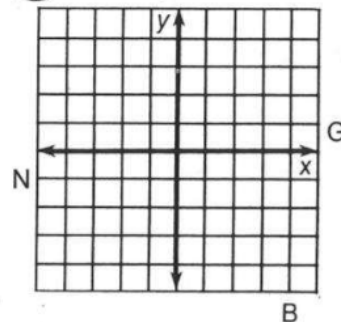
①  $y = -2$



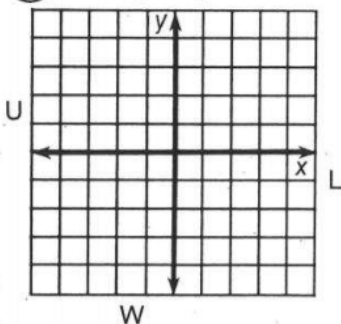
②  $x = 4$



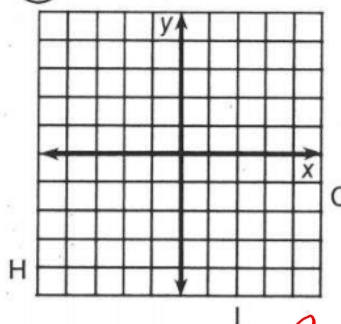
③  $2x - 3y = 9$



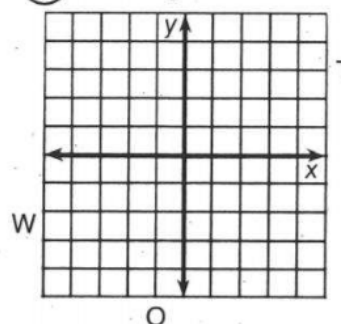
④  $x + 2y - 4 = 0$



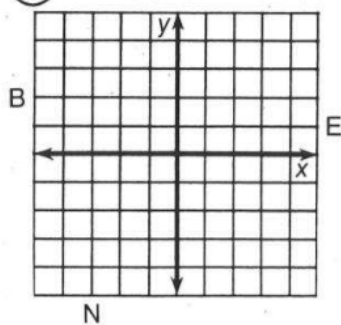
⑤  $3x + 4y = 12$



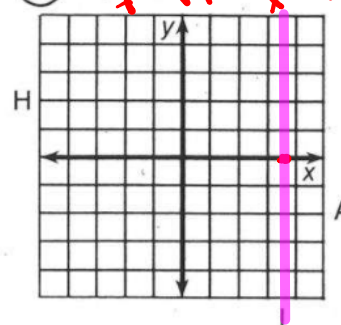
⑥  $6x - 5y + 20 = 0$



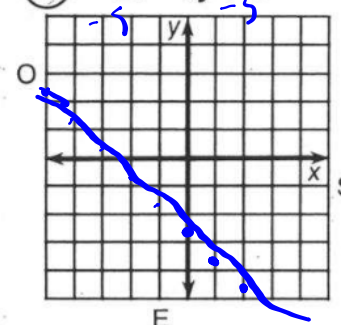
⑦  $x + 3 = 0$



⑧  $2x - 7 = 0$



⑨  $-2x = 2y + 5$



CSHWEHOFANDAPLBOLFGMSIPTWEERN

Answer: \_\_\_\_\_

Work for Why Did the Cow Want a Divorce?

1)	2)	3)
4)	5)	6)
7)	8)	9)

## **Math Inventory (MI) Directions**

You can access the MI on any device (desktop, laptop, Ipad, Tablet, etc.)

Follow this link to the test: <https://h100003989.education.scholastic.com>

Log in information: Username – Student ID  
Password – Student ID

Once Logged in Begin your Test.

Submit Scratch work to the Lesson Assignments Tab.

**Math Inventory Tips**

- Students can use up to three “skips” without penalty. If your student is struggling with a question, you can remind them they can skip it. This will not affect their score.
- The assessment generally takes about 30-40 minutes to complete. If students need to exit before completing the *Math Inventory*, they can log out of the assessment. Their progress will be saved, so they can pick up exactly where they left off the next time they log in.
- Students will complete a typing warm up, may be given the math fact screener (dependent on settings chosen by teachers), and some practice test items.
- Students will answer 25 – 30 multiple-choice questions.
- Each student has a unique test that is different from their peers
- The questions adapt to their level of math understanding