

Name:	Date:
Topic/Objective: Graph using slope intercept form	Class/Period:

DO NOW:	Notes:
1.) Rewrite $5x+y=8$ so y is a function of x . 2.) Find the slope $(-5,6)$ and $(0,8)$ x_1, y_1 x_2, y_2 3.) Solve for y : $(9,3), (-6,7y)$; $m=3$ x, y, x_2, y_2	$5x + y = 8$ $\frac{-5x}{-5x} \quad \frac{-5x}{-5x}$ $y = -5x + 8$ $m = \frac{y_2 - y_1}{x_2 - x_1}$ $m = \frac{8 - 6}{0 - -5}$ $m = \frac{2}{5}$ $m = \frac{y_2 - y_1}{x_2 - x_1}$ $\frac{3}{1} = \frac{7y - 3}{-6 - 9}$ $\frac{3}{1} = \frac{7y - 3}{-15}$ $\frac{-45}{+3} = \frac{7y - 3}{+3}$ $\frac{-42}{7} = \frac{7y}{7} \quad \boxed{-6=y}$

Questions/ Main ideas:	
Definition of slope intercept form:	$y = mx + b$ where $m = \text{Slope}$ and b is the <u>y-intercept</u> of the equation's graph.
	$y = mx + b$ $\downarrow \quad \downarrow$ $y = \frac{1}{3}x + 1$

So how do I identify the slope and the y intercept? (1-6)	1.) $y = 3x + 4$ $m = 3$ $b = 4$	2.) $y = 5x - 3$ $m = 5$ $b = -3$	3.) $y = -2x + 4$ $m = -2$ $b = 4$
Sometimes we may need to rewrite the equation so that y is a function of x . (4-6)	4.) $3x + y = 2$ $\frac{-3x}{-3x} \quad \frac{-3x}{-3x}$ $y = -3x + 2$ $m = -3$ $b = 2$	5.) $3x - 3y = 12$ $\frac{-3x}{-3x} \quad \frac{-3x}{-3x}$ $-3y = -3x + 12$ $\frac{-3y}{-3} \quad \frac{-3x}{-3} \quad \frac{12}{-3}$ $y = x - 4$ $\boxed{m = 1 \quad b = -4}$	6.) $x + 4y = 6$ $\frac{-x}{-x} \quad \frac{-x}{-x}$ $4y = -x + 6$ $\frac{4y}{4} \quad \frac{-x}{4} \quad \frac{6}{4}$ $y = -\frac{1}{4}x + \frac{6}{4}$

$$y = -\frac{1}{4}x + \frac{3}{2}$$

$$\boxed{m = -\frac{1}{4} \quad b = \frac{3}{2}}$$

NEXT...

How do you graph linear equations in slope intercept form?

Steps to Graphing an equation using slope intercept form:

Step 1: Rewrite the equation in slope intercept form if needed.

Step 2: Identify the slope and y intercept

Step 3: Plot the point that corresponds to the y intercept.

Step 4: Use the slope to locate a second point and connect

Graph the equations:

7) $2x+3y=3$

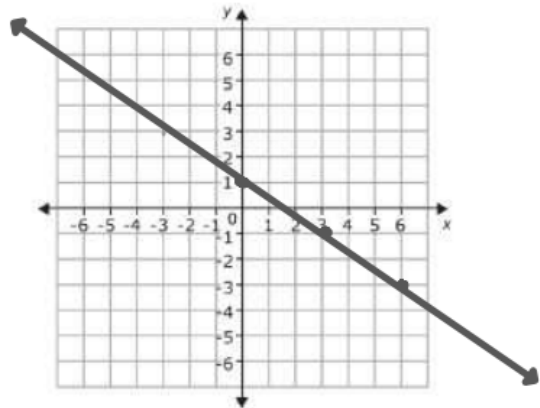
$$\frac{-2x}{3} = \frac{-2x}{3} + \frac{3}{3}$$

$$y = -\frac{2}{3}x + 1$$

$$m = -\frac{2}{3}$$

$$b = 1$$

$(0, 1)$



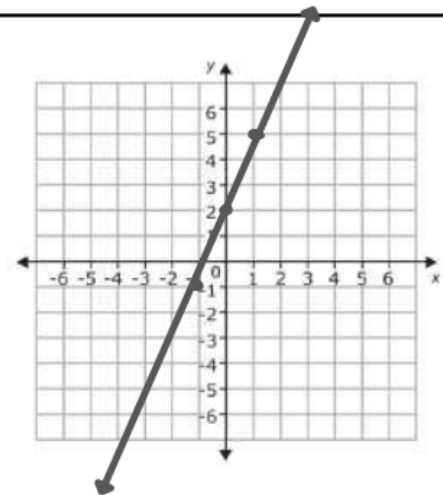
$$-\frac{2}{3}$$

8.) $y = 3x + 2$

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

$$b = 2$$

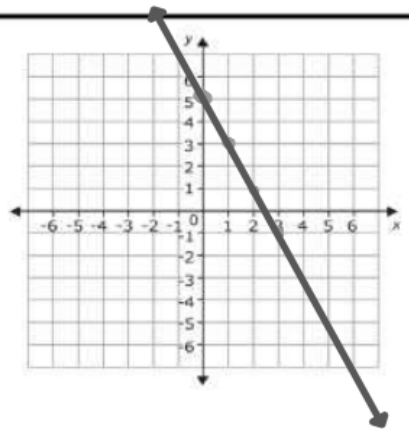
$(0, 2)$



9.) $y = -2x + 5$

$m = -\frac{2}{1}$ ↘

$b = 5$
(0, 5)



How do I identify parallel lines?

You find the slope!

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Line a: $\frac{1}{3}$

Line b: $\frac{2}{5}$

Line c: $\frac{1}{3}$

★ The lines are parallel if they have the same slope. ★

Determine which of the lines are parallel.

x_1, y_1, x_2, y_2
a: (-1, -1) (2, 0)

$m = \frac{0 - (-1)}{2 - (-1)} = \frac{1}{3}$

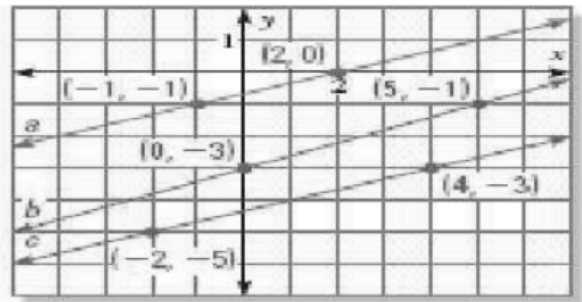
b: (0, -3) (5, -1)

$m = \frac{-1 - (-3)}{5 - 0} = \frac{-1 + 3}{5} = \frac{2}{5}$

c: (-2, -5) (4, -3)

$m = \frac{-3 + 5}{4 + 2} = \frac{2}{6} = \frac{1}{3}$

a and c are parallel same slope.



Summary: How can you tell if lines are parallel? What does the m and b stand for? How do you graph linear equations?

