

Simplify

$$2(x + 3y) - 4(3x - 5y)$$

$$= \underline{2x} + \underline{6y} - \underline{12x} + \underline{20y}$$

$$= -10x + 26y$$

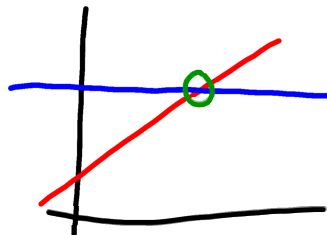
What do you remember about Lines?

$$y = mx + b$$

↑ ↑
Slope Initial Value
"Steepness" or
y-intercept

$$= \frac{\text{rise}}{\text{run}}$$

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



x and y
intercepts

x	y	First Diff
0	-3	
1	0	$0 - (-3) = 3$
2	3	$3 - 0 = 3$
3	6	$6 - 3 = 3$
4	9	

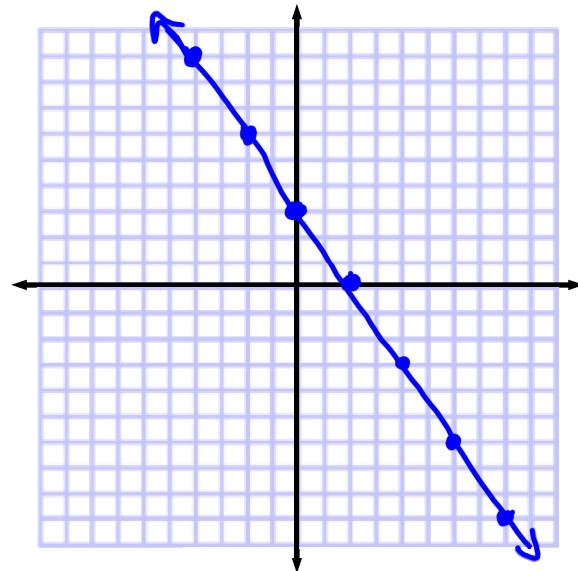
Graphing $y = mx + b$

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

slope \downarrow
 $= \frac{\text{rise}}{\text{run}} \left(\frac{-3}{2} \right)$

\downarrow
y-int

- ① Put a point at the y-int
- ② Use the slope to get other points



Converting to $y = mx + b$

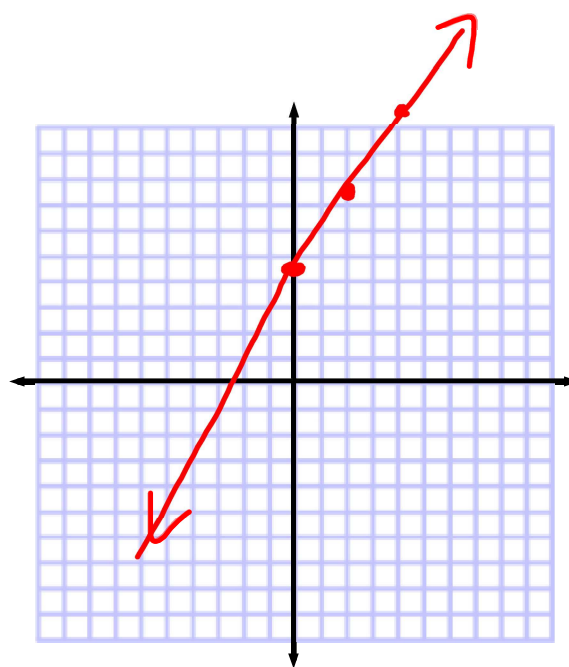
$$3x - 2y + 9 = 0$$

(Note: A curved arrow points from the $-2y$ term to the $+9$ term, with $+2y$ written below each.)

$$\frac{3x}{2} + \frac{9}{2} = \frac{2y}{2}$$
$$y = \frac{3}{2}x + \frac{9}{2}$$

(Note: The slope $\frac{3}{2}$ and y-intercept $\frac{9}{2}$ are circled in red.)

Slope *y-int*



x and y intercepts

$$3x + 5y = 10$$

y-int ($x=0$)

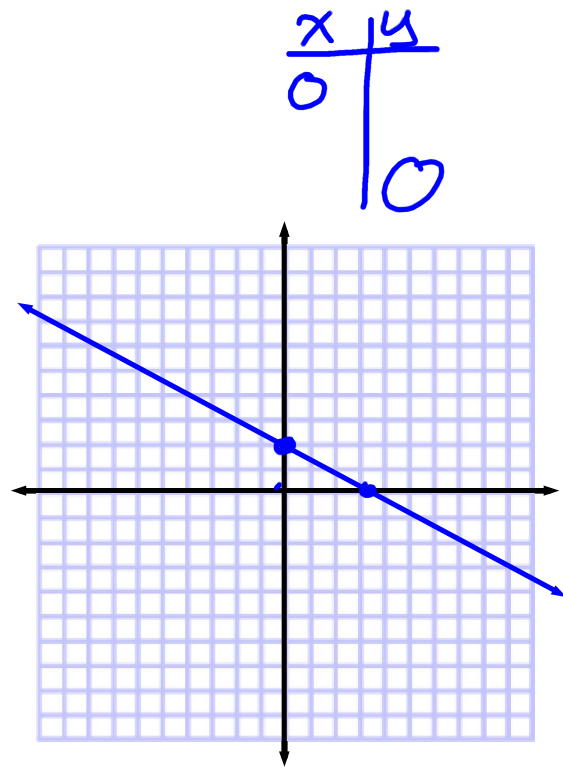
$$3(0) + \frac{5y}{5} = \frac{10}{5}$$

$$y = 2$$

x-int ($y=0$)

$$\frac{3x}{3} + 5(0) = \frac{10}{3}$$

$$x = 3.\bar{3}$$



DESMOS

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