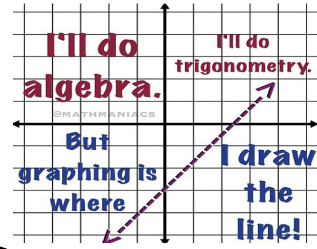


4.5 Graphing Linear Relations  
Using Slope and y-intercept



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

↑ slope      ↓ y-intercept

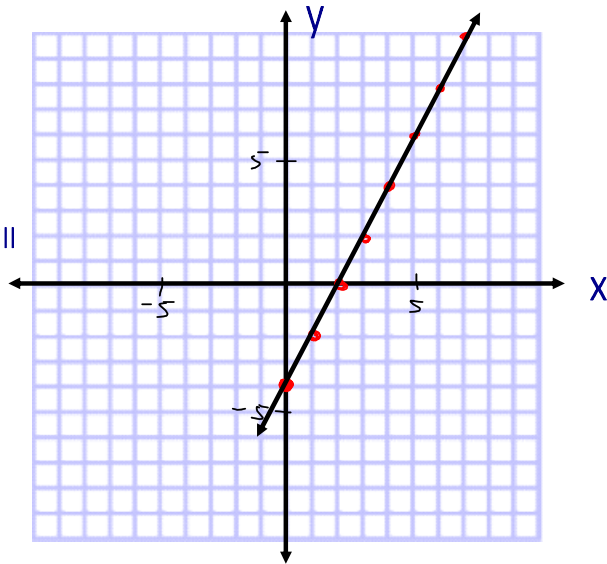
Ex.1 a) Graph  $y = 2x - 4$

*Step 2* (points to the slope '2')

*Step 1* (points to the y-intercept '-4')

$m = \frac{\text{rise}}{\text{run}}$   
 $= 2$   
 $= \frac{2}{1}$  UP RIGHT

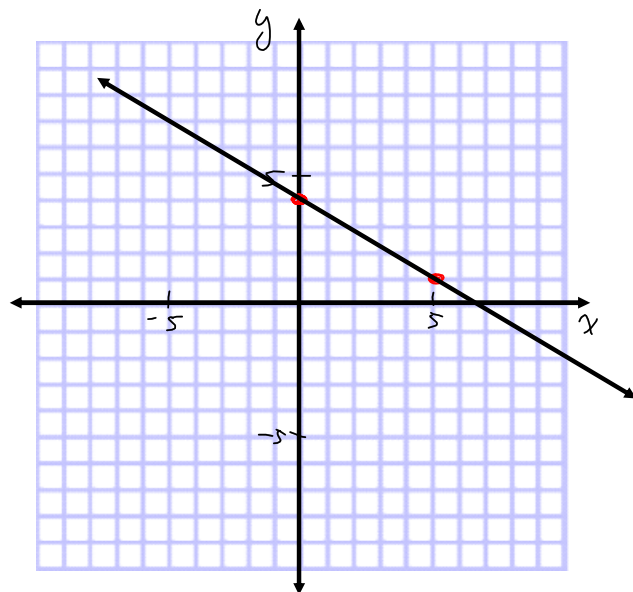
Plot the y-int;  
 the x-value will  
 always be 0.



From the y-int, use the slope (rise over run) to plot another point.

b)  $y = \frac{-3}{5}x + 4$

$m = \frac{-3}{5}$  ← down 3  
 ← right 5

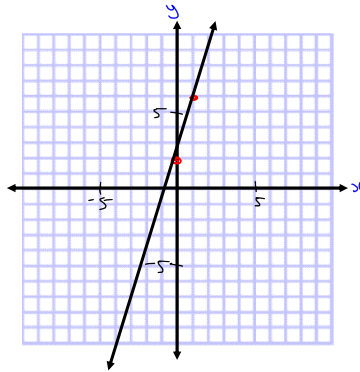


Practice... Graph from slope y-intercept form.

Ex. 2

a)  $y = 4x + 2$

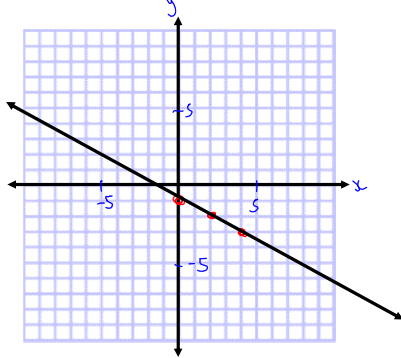
$m = 4$   
 $= \frac{4}{1}$  UP 4  
 1 right



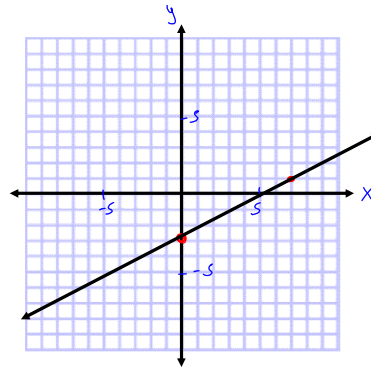
- Communication**
- -arrows on axes
  - -x and y axis labelled
  - -show scale on x and y axis
  - -arrows on line
  - -line is labeled with equation
  - -line extends to edges of graph

b)  $y = -\frac{1}{2}x - 1$

$m = -\frac{1}{2}$  → DOWN 1  
 → RIGHT 2



**CAREFUL!**  
 c)  $y = -3 + \frac{4}{7}x$   
 $y = \frac{4}{7}x - 3$  y-int: -3



**Wrong Form!**

d)  $5x - 2y = 8$

Solve for y =

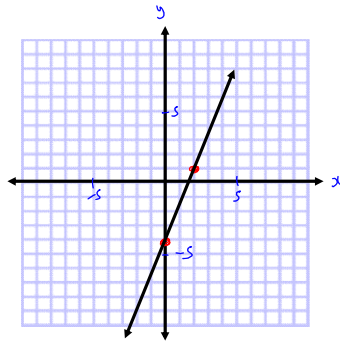
$5x - 2y = 8$

$5x - 8 = 2y$

$\frac{5x - 8}{2} = \frac{2y}{2}$

$\frac{5}{2}x - 4 = y$

$y = \frac{5}{2}x - 4$



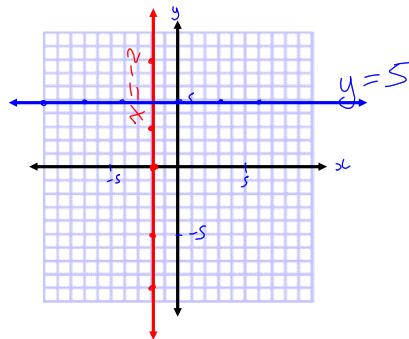
e)  $x = -2$

**SPECIAL CASES**

f)  $y = 5$

$y = 0x + 5$

↑  
 Slope of zero.



$$y = mx + b$$

Ex. 3 What is the equation of the line?

