

GRAPHING $y = mx + b$

In order to graph a linear equation in the form $y = mx + b$ we can follow the steps outlined below:

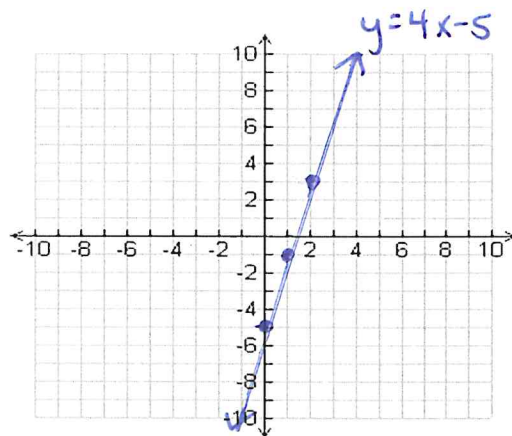
1. Plot the y-intercept
2. Starting at the y-intercept, use the slope to locate a second point and a third point!
3. Connect the points and extend the line in both directions using a ruler.

For each of the following questions:

- a) State the slope and y-intercept
- b) Graph and label the line

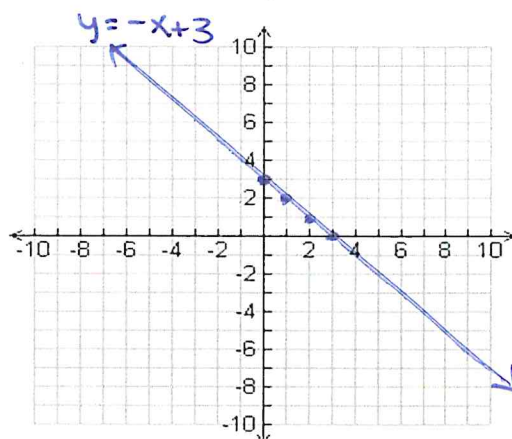
1. $y = 4x - 5$

$m = \underline{4/1}$ $b = \underline{-5}$



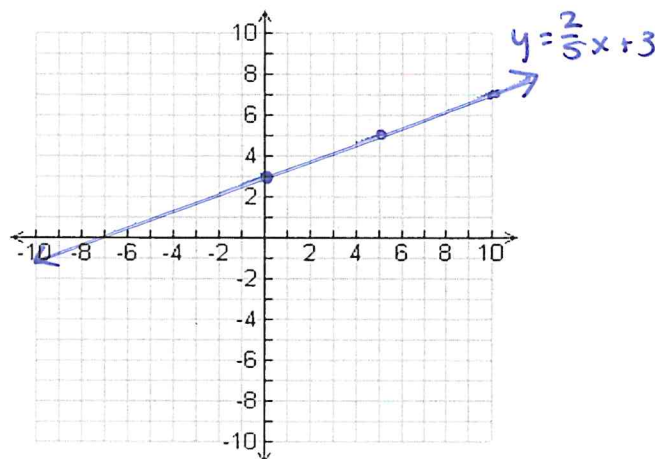
2. $y = -x + 3$

$m = \underline{-1/1}$ $b = \underline{3}$



3. $y = \frac{2}{5}x + 3$

$m = \underline{2/5}$ $b = \underline{3}$



Slope and y-Intercept ($y = mx + b$)

4) Write the equation of each line in $y = mx + b$ form using the information given.

a) Slope = 7 and y-intercept = 9

Equation: $y = 7x + 9$

b) $m = -3$ and $b = 3$

Equation: $y = -3x + 3$

c) $m = 0$ and $b = -3$

Equation: $y = 0x - 3 \Rightarrow y = -3$

d) $m = \frac{7}{2}$ and $b = 0$

Equation: $y = \frac{7}{2}x + 0 \Rightarrow y = \frac{7}{2}x$

5) Determine the **slope** and **y-intercept** for each of the following equations.

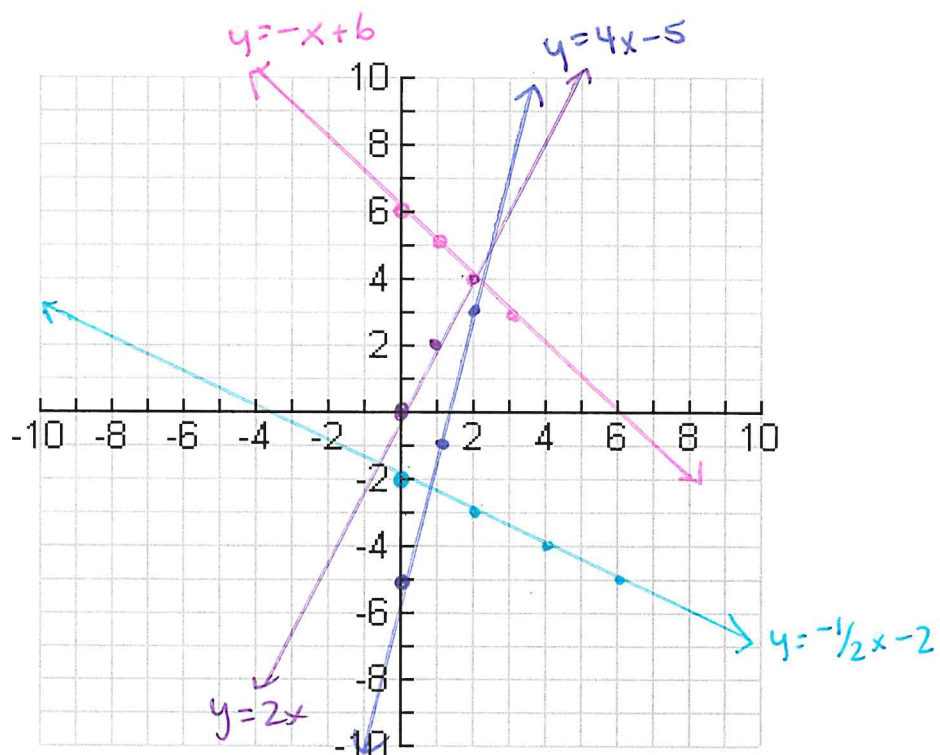
Use the information to **graph** each line on the same xy-plane. Label each line.

a) $y = 4x - 5$ m: $\frac{4}{1}$ y-int: -5

b) $y = -x + 6$ m: $-\frac{1}{1}$ y-int: 6

c) $y = 2x$ m: $\frac{2}{1}$ y-int: 0

d) $y = -\frac{1}{2}x - 2$ m: $-\frac{1}{2}$ y-int: -2



6) State the slope and y-intercept of each line, then graph.

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

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

$b = -2$

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

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

$b = 5$

b) $y = 2x - 4$

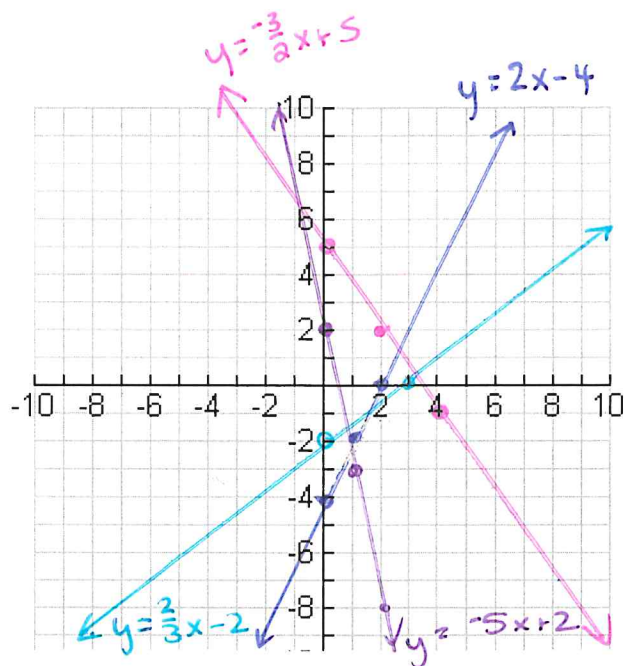
$m = \frac{2}{1}$

$b = -4$

d) $y = -5x + 2$

$m = -\frac{5}{1}$

$b = 2$



7) State the slope and y-intercept of each line, then graph.

a) $y = -\frac{1}{6}x + 8$

$m = -\frac{1}{6}$

$b = 8$

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

$m = \frac{2}{5}$

$b = -6$

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

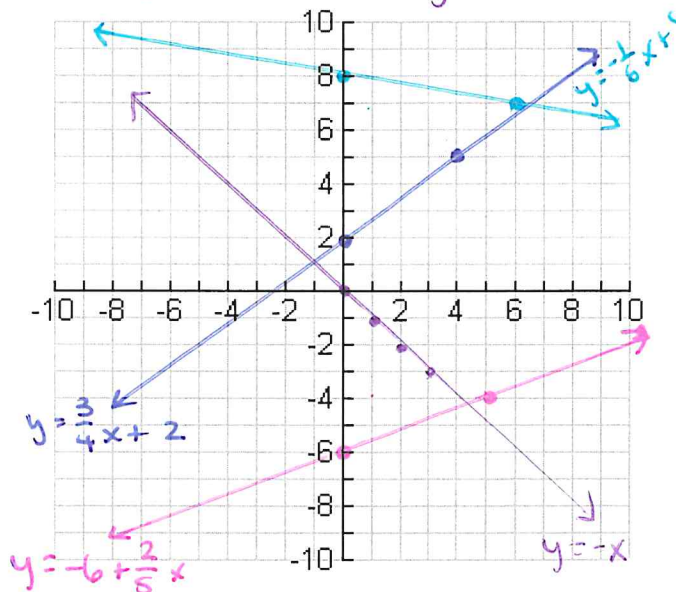
$m = \frac{3}{4}$

$b = 2$

d) $y = -x$

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

$b = 0$



8) Graph the following lines and state their Point of Intersection.

$y = -\frac{4}{5}x + 9$

$m = -\frac{4}{5}$

$b = 9$

$y = \frac{3}{5}x + 2$

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

$b = 2$

THE POI is: (5, 5)

