Today's Learning Goal(s):

By the end of the class, I will be able to:

a) determine the x- and y-intercepts of linear relations.

b) graph a linear function using 3 different methods .

MCF 3MI   **Finding Intercepts of Linear Relations**

Date: **Feb. 13/19**
(Every lesson)

What is an intercept?

A point where a graph crosses one of the axes. i.e.) x-axis or y-axis

How can you calculate the x- and y-intercept of any function?

You set the other variable to zero, and solve.
Ex: to find the y-intercept, let $x = 0$, and solve for y.

Ex.1: Determine the x- and y-intercepts of each linear relation.

a) $x + 3y - 3 = 0$

y-int, let $x = 0$

$(0) + 3y - 3 = 0$

$3y = 3$

$y = 1$

x-int, let $y = 0$

$x + 3(0) - 3 = 0$

$x - 3 = 0$

$x = 3$

b) $12 = 6x - 5y$

x-int, let $y = 0$

$12 = 6x - 5(0)$

$\dfrac{12}{6} = \dfrac{6x}{6}$

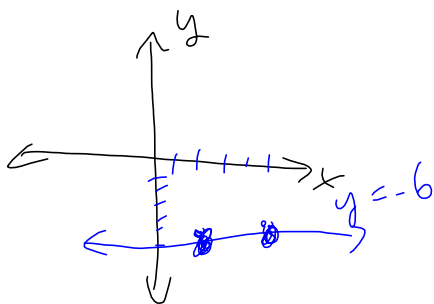$2 = x$

y-int, let $x = 0$

$12 = 6(0) - 5y$

$12 = -5y$

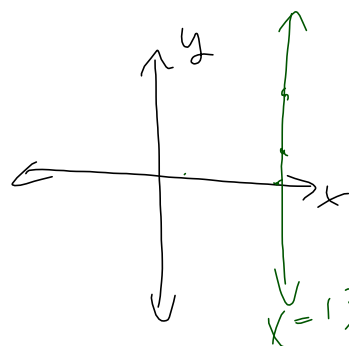$\dfrac{12}{-5} = \dfrac{-5y}{-5}$

$\dfrac{-12}{5} = y$

c) $y = -6$ $(2, -6)$

$(5, -6)$

$y = -6$

∴ NO x-intercept

y-int = -6

d) $x = 13$ $(13, 1)$

$(13, 3)$

$x = 13$

x-int = 13

No y-intercept

Graphing Linear Functions (3 Methods)

Table of Values (ToV)   Intercept method   Slope y-intercept method

Ex. 2: Graph each of the following using the method indicated. y
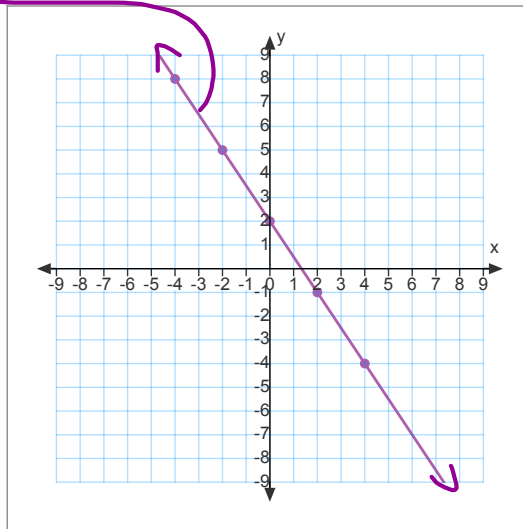
a) $2y = 4 - 3x$ (ToV)

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

regular values:

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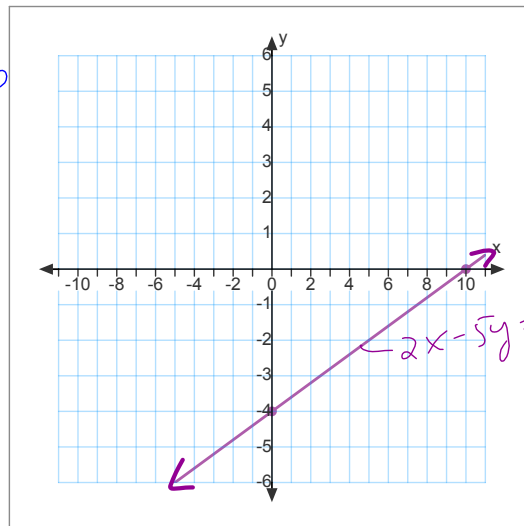
$$y = -\frac{3}{2}x + 2$$

-2
-1
0
1
2

x	y
-4	$y = -\frac{3}{2}(-4) + 2 = 8$
-2	$= -\frac{3}{2}(-2) + 2 = 5$
0	2
2	-1
4	-4

b) $2x - 5y = 20$ (intercept) $y =$

x-int
let $y = 0$

$2x - 5(0) = 20$

$2x = 20$

$x = 10$

{ y-int, let $x = 0$

$2(0) - 5y = 20$

$-5y = 20$

$y = \frac{20}{-5}$

$y = -4$

$2x - 5y = 20$

c) $x - 3y + 12 = 0$ (slope y-intercept) $y =$

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

$-3y = -x - 12$ } or

$x + 12 = 3y$

$\frac{-3y}{-3} = \frac{-x}{-3} - \frac{12}{-3}$

$\frac{x}{3} + \frac{12}{3} = \frac{3y}{3}$

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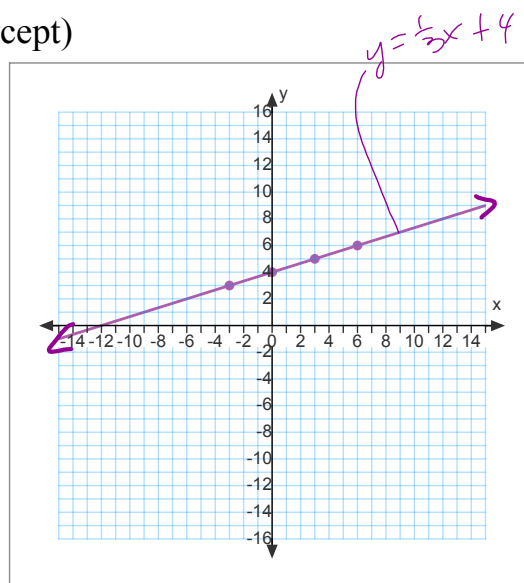
$\frac{x}{3} + 4 = y$

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

$y = mx + b$

$\therefore m = \frac{1}{3}$ $\left(\frac{Rise}{Run}\right)$

$b = 4$ y-int

Today's Homework Practice:
   p. 538 #1 - 4*
   p. 540 #1ac, 2*, 3bd, 4*cd, 5*ac
   **you will need graph paper!!