

\* try HW p. 347 #38, 39 with graph paper to hand in

(20)

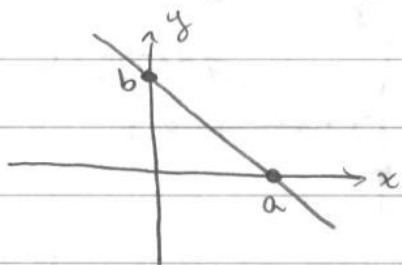
## Lesson 8: Graphing Linear Equations in 2 variables by using Intercept Method

- What does intercept mean? To cross (intersect)

- $x$ -intercept is the point where a graph crosses the  $x$ -axis

- $y$ -intercept is the point where a graph crosses the  $y$ -axis.

- How can these be found?



The point at  $y=b$  must have an  $x$ -coordinate of 0 to be on the  $y$ -axis.

The point at  $x=a$  must have a  $y$ -coordinate of 0 to be on the  $x$ -axis.

Thus, the  $y$ -intercept is the point whose  $x$ -coordinate = 0 and whose  $y$ -coord. corresponds to

the  $x=0$  (ie. set  $x$  to 0, solve for  $y$ )

and the  $x$ -intercept is the point whose  $y$ -coordinate = 0 and whose  $x$ -coord.

corresponds to  $y=0$  (ie. set  $y=0$ , solve for  $x$ )

\* Since, to graph a line, we need a minimum of two points, two different intercepts are enough to graph a linear equation.

(21)

ex.  $2x - 3y = 6$

x-int: set  $y = 0$

y-int: set  $x = 0$

can skip these steps

$2x - 3(0) = 6$   
 $2x - 0 = 6$

$2(0) - 3y = 6$

$0 - 3y = 6$

when comfortable

$\frac{2x}{2} = \frac{6}{2}$

$\frac{-3y}{-3} = \frac{6}{-3}$

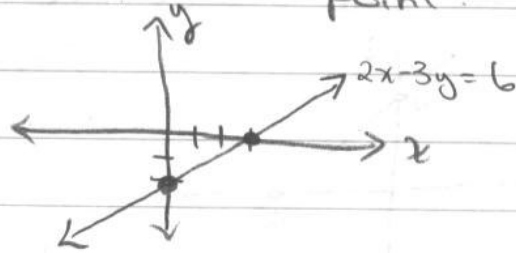
$x = 3$

$y = -2$

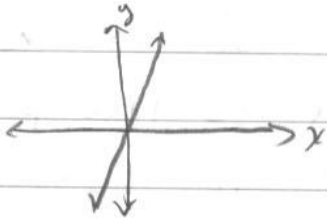
So point:  $(3, 0)$

So point:  $(0, -2)$

graph:



- what if line goes through origin?



Since there is only one intercept (same for  $x$  and  $y$ ), just pick any other  $x$  value and get a  $y$  value or vice versa to get the second point.

ex:  $5x + 2y = 0$

x-int:  $y = 0$

y-int:  $x = 0$

$5x + 2(0) = 0$

$5(0) + 2y = 0$

$\frac{5x}{5} = \frac{0}{5}$

$\frac{2y}{2} = \frac{0}{2}$

$x = 0$

$y = 0$

$(0, 0)$

$(0, 0)$

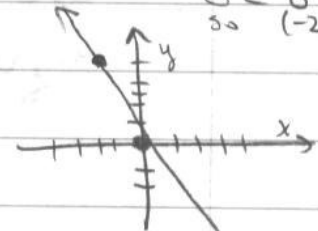
any pair  $x$  and  $y$  that make the equation true is a point on the line

try  $x = -2, y = 5$

$5(-2) + 2(5) = 0$

$-10 + 10 = 0$

$0 = 0$   
so  $(-2, 5)$



only need to do one of line has only one x-int and one y-int why?

