

BE-1A TUESDAY 2-5-08

① Find the X-intercept of:

$$5x + 2y = 10$$

② Find the Y-intercept of:

$$5x + 2y = 10$$

③ Given the X and Y intercepts from ① and ②, graph the linear equation.

X-intercept $\Rightarrow y = 0$

$$5x + 2y = 10$$

$$5x + 2(0) = 10$$

$$\frac{5x}{5} = \frac{10}{5}$$

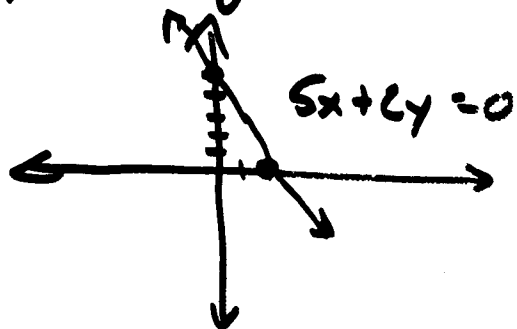
$$x = 2 \therefore (2, 0)$$

Y-intercept $\Rightarrow x = 0$

$$5x + 2y = 10$$

$$5(0) + \frac{2y}{2} = \frac{10}{2}$$

$$y = 5 \therefore (0, 5)$$



1.
LET'S TAKE THE EQUATION WE GRAPHED
USING THE "METHOD OF INTERCEPTS"
IN THE BE AND SOLVE FOR y :

$$\begin{array}{r} 5x + 2y = 10 \\ -5x \qquad \qquad -5x \end{array}$$

$$\frac{2y}{2} = \frac{-5x + 10}{2}$$

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

↑
LOOK
NOTICE ANYTHING?

↑
LOOK
NOTICE
ANYTHING?

$-\frac{5}{2}$ is the slope!

+5 is the y -intercept!!!

A LINEAR EQUATION THAT HAS BEEN "solved for y " is called the "slope-intercept form" of a linear equation. It is written as

$$y = \underset{\substack{\uparrow \\ \text{slope}}}{m}x + \underset{\substack{\uparrow \\ \text{y-intercept}}}{b}$$

(the y you get when $x = 0$)

Since it gives you a point (the y -intercept) and the slope, it can then be used to graph the line quickly and easily.

Begin at b , move by the slope...
 $\quad \quad \quad b \quad \quad \quad m$
 (JUST LIKE THE SLOPE TREASURE HUNT)

All you need to have to graph a linear equation is to have it in "solve for y" form. Let's graph a few examples:

Recall $y = mx + b$

$\uparrow$ $\uparrow$
 slope y-intercept

Ex ① $y = \frac{2}{3}x + 4$

② $y = 3x - 2$

③ $y = -\frac{1}{2}x + 4$

④ $y = \frac{2}{7}x$

Summary: given $y = mx + b$

$\nearrow$ begin at b
 then move by m

Q WHAT DO YOU DO IF YOUR EQUATION IS NOT SOLVED FOR y AND YOU WANT TO GRAPH IT?

A Solve it for y !! Then graph.

EX4
Pg 273

Ch. 5-3 Slope-Intercept Form

Graph $5x - 3y = 6$

$$-5x$$

$$-5x$$

$$\frac{-3y}{-3} = \frac{-5x + 6}{-3}$$

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

↑
 m

move
by m

↑

$b = y$ intercept

begins at b

Homework: • Page 275 #4 and 5

EX) WRITE AN EQUATION WITH
SLOPE = -6 and y-intercept = 4

$$y = -6x + 4$$

↑
SLOPE

↑
y-intercept

• Page 275 #8-10
(graphs)

Homework Review - Pg 168 # 15-16

⑬ For g ,

$$\begin{array}{rcl} 5g + h & = & g \\ -g & & -g \\ \hline 4g + h & = & 0 \\ -h & & -h \\ \hline 4g & = & -h \\ \frac{4g}{4} & = & \frac{-h}{4} \end{array}$$

$g = -\frac{h}{4}$

⑭ For t ,

$$\begin{array}{rcl} 8t - r & = & 12t \\ -8t & & -8t \\ \hline -r & = & 4t \\ \frac{-r}{4} & = & \frac{4t}{4} \end{array}$$

$\frac{-r}{4} = t$

①5. For m , $y = mx + b$
 $-b$ $-b$

$$\frac{y-b}{x} = \frac{mx}{x}$$

$$\boxed{\frac{y-b}{x} = m}$$

For a

①6 $v = r + at$
 $-r$ $-r$

$$\frac{v-r}{t} = \frac{at}{t}$$

$$\boxed{\frac{v-r}{t} = a}$$

Ps 222 # 44

④4 x & y intercepts $4x - 7y = 14$

$x_{int}, y = 0$ $4x - 7(0) = 14$

$$4x = 14$$

$\therefore$

$$\boxed{x = \frac{14}{4} = \frac{7}{2}}$$

$y_{int}, x = 0$

$$4(0) - 7y = 14$$

$$\begin{array}{r} -7y = 14 \\ \underline{-7} \quad \underline{-7} \end{array}$$

$$\boxed{y = -2}$$