

BE-1A MONDAY 3-24-08

- ① WRITE THE EOL that passes through $(1,0), (3,4)$. [💡] use $y=mx+b$ twice
METHOD
- ② GRAPH THE line from ①
- ③ PUT THE EOL into Standard Form.
(Reference: page 218)

① $(1,0), (3,4)$
x, y

$$m = \frac{4-0}{3-1} = \frac{4}{2} = \boxed{2 = m}$$

$$y = mx + b$$

$$0 = 2 \cdot 1 + b$$

$$0 = 2 + b$$

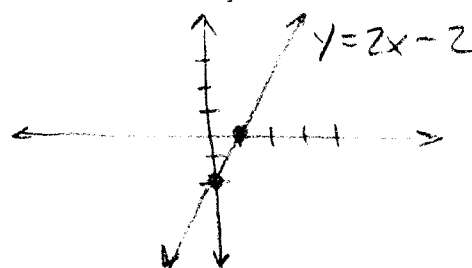
$$\begin{array}{r} -2 \\ -2 \end{array}$$

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

$$y = mx + b$$

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

②



$$Ax + By = C$$

③ $y = 2x - 2$
 $\begin{array}{r} +2 \\ +2 \end{array}$

$$2 + y = 2x$$

$$\begin{array}{r} -y \\ -y \end{array}$$

$$2 = 2x - y$$

OR $\boxed{2x - y = 2}$
 $Ax + By = C$

There is one more form of a linear equation that we will use in Algebra 1.

Lets put THE Bell Exercise line in this new form which is most convenient if you know the slope and an (x, y) pair:

Lets use $m = 2$ $(x, y) = (3, 4)$

Form $y - y_1 = m(x - x_1)$ where: m is slope
 (x_1, y_1) is the known point

$$y - (4) = 2(x - (3))$$

$$y - 4 = 2(x - 3)$$

↑
SLOPE

↑
KNOW POINT

Chapter 5-5

$y - y_1 = m(x - x_1)$ is Point-Slope Form

Convert $y - 4 = 2(x - 3)$ to S-I Form

$$y - 4 = 2(x - 3)$$

↓
"y by itself"

$$y - 4 = 2x - 6$$

+4

+4

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

💡 P-S Form $\Rightarrow$ Very convenient if you know point and slope!

* For any line, you can convert from any form, to any other.

* For any line, S-I form and Standard Form
($y = mx + b$) ($Ax + By = C$)

are unique $\Rightarrow$ but the P-S Form will
"look" different depending on which point
you use (out of the ∞ pairs on the line).

Look again at the Bell Exercise line through $(1, 0)$, $(3, 4)$. $m = 2$

PS using $(1, 0)$

$$y - y_1 = m(x - x_1)$$

$$y - 0 = 2(x - 1)$$

Convert to SI

$$y = 2(x - 1)$$

$$y = 2x - 2 \quad \checkmark$$

PS using $(3, 4)$

$$y - y_1 = m(x - x_1)$$

$$y - 4 = 2(x - 3)$$

Convert to SI

$$y - 4 = 2(x - 3)$$

$$y - 4 = 2x - 6$$

+4

+4

$$y = 2x - 2 \quad \checkmark$$

EX1
Pg 286

Write PS Form of EOL for line through $(-1, 5)$ with slope of -3

$$y - y_1 = m(x - x_1)$$

$$y - 5 = -3(x + 1)$$

Ex 3
Pg 287

WRITE $y+5 = -\frac{5}{4}(x-2)$ in SF

$$4(y+5) = 4 \cdot -\frac{5}{4}(x-2)$$

$$4y + 20 = -5(x-2)$$

$$4y + 20 = -5x + 10$$

+5x

+5x

$$5x + 4y + 20 = 10$$

-20

-20

$$\boxed{5x + 4y = -10}$$

Summary

$$Ax + By = C \quad \text{Standard Form}$$

$$y = mx + b \quad \text{Slope-Intercept Form, "function" form, best for graphing}$$

$$y - y_1 = m(x - x_1) \quad \text{Point-Slope Form}$$

Homework :: Read Ch 5-5

• Pg 289 # 1 to 7 and # 10.