

3.4 Standard Form

Algebra 1 3.4 Standard Form

$$ax + by = c \quad \text{"Standard Form"}$$

a , b , & c are all numbers. y & x are the variables.

Ex: $2x - 4y = -8$

Identify a , b , and c .

$$a = 2 \quad b = -4 \quad c = -8$$

Slope intercept
Form

$$y = mx + b$$

Standard Form

$$ax + by = c$$

Ex: Convert $3x + 4y = 12$ to slope-intercept form & Graph.

Solve for y ...

$$\begin{array}{r} 3x + 4y = 12 \\ -3x \quad -3x \end{array}$$

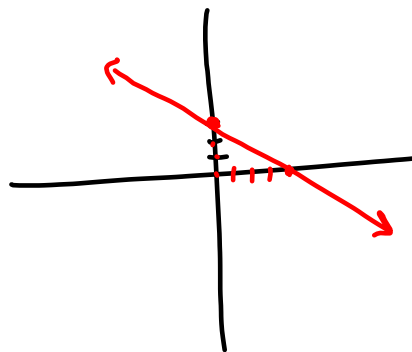
$$\frac{4y}{4} = \frac{-3x + 12}{4}$$

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

$$m: -\frac{3}{4} \quad b: 3$$

↓ 3

→ 4



3.4 Standard Form

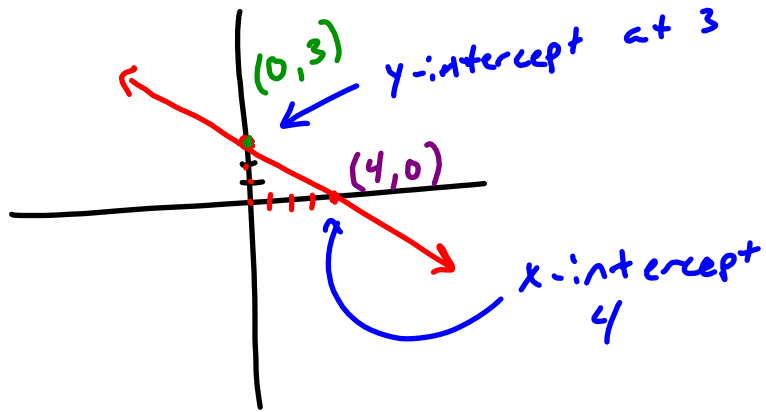
$$3x + 4y = 12 \quad \text{to slope-intercept}$$

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

$$m: -\frac{3}{4} \quad b: 3$$

↓ 3

→ 4



if you knew the intercepts, you could graph without needing the slope.

To Find intercepts:

All **y intercepts** must have **0** as the **x** value.

All **x intercepts** must have **0** as the **y** value.

→ Set $x = 0$ and solve.
"make x be 0"

$$3x + 4y = 12$$

y-int:

$$3(0) + 4y = 12$$

$$y = 3$$

so... $(0, 3)$

$$\frac{4y}{4} = \frac{12}{4}$$

set $y = 0$ & solve.

x-int: $3x + 4(0) = 12$

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

$$x = 4$$

$(4, 0)$

Previous

Example.

3.4 Standard Form

Ex: Find x & y intercepts
of

$$5x + 3y = 30$$

• x -int: set $y=0$ & solve.

$$5x + 3(0) = 30$$

so (x, y)
 $(6, 0)$

$$\frac{5x}{5} = \frac{30}{5} \quad \underline{x = 6}$$

• y -int: set $x=0$ & solve.

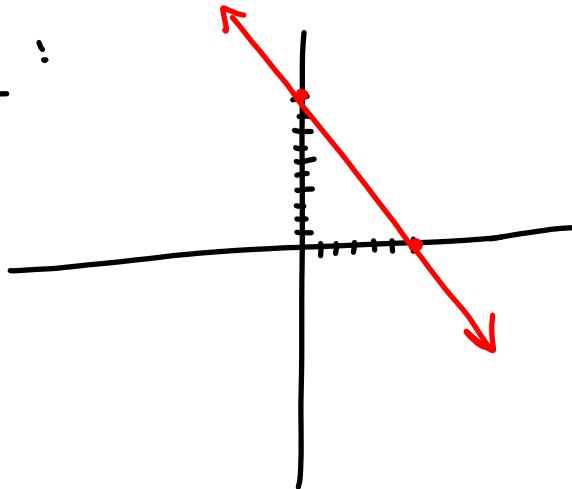
$$5(0) + 3y = 30$$

so (x, y)
 $(0, 10)$

$$\frac{3y}{3} = \frac{30}{3} \quad \underline{y = 10}$$

Now Graph:

- plot the intercepts.
- connect the dots.



HW: Pg 133: #s 8-11, 14-15,
19, 20