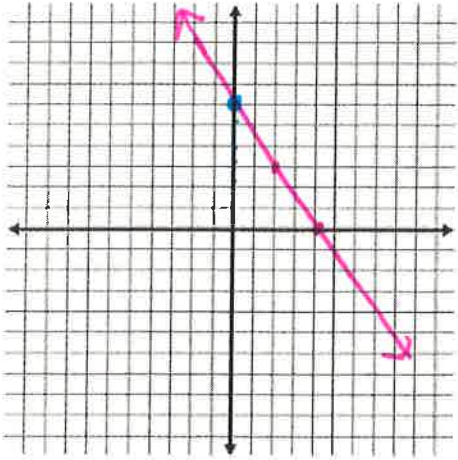


1.5 Graphing linear Equations and Inequalities NOTES

Ex 1: Graph $3x + 2y = 12$



① Slope-intercept form $y = mx + b$

$$3x + 2y = 12$$

$$\begin{array}{r} -3x \\ -3x \end{array}$$

$$\frac{2y}{2} = \frac{-3x + 12}{2}$$

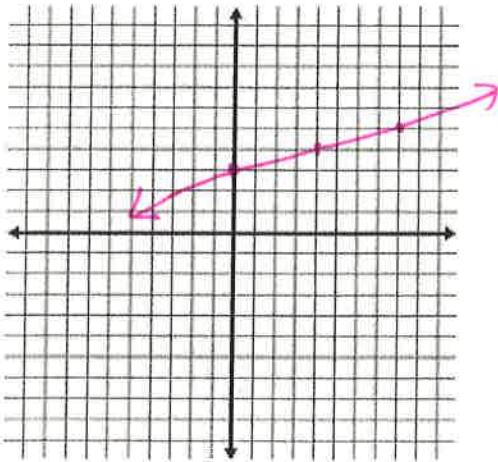
$$y = -\frac{3}{2}x + 6$$

← y-int (0, 6)

↑
fall down 3
run right 2

You try...

a) $x - 4y = -12$



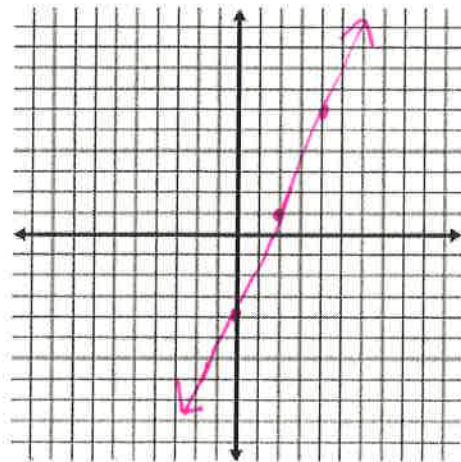
$$x - 4y = -12$$

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

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

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

b) $5x = 2y + 8$



$$5x = 2y + 8$$

$$\begin{array}{r} -8 \\ -8 \end{array}$$

$$\frac{5x - 8}{2} = \frac{2y}{2}$$

$$\rightarrow y = \frac{5}{2}x - 4$$

$$0 = 2y - 5x + 8$$

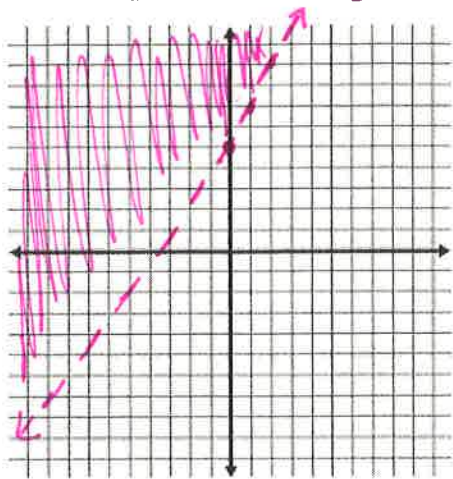
$$\begin{array}{r} -2y \\ -2y \end{array}$$

$$\frac{-2y}{-2} = \frac{-5x + 8}{-2}$$

$$y = \frac{5}{2}x - 4$$

Ex 2: Graph

$$2x - y < -5$$



$$\begin{aligned} -y &< -2x - 5 \\ \downarrow & \quad \quad \downarrow \\ -y &< \frac{-2x - 5}{-1} \end{aligned}$$

$$y > 2x + 5$$

dashed line

Remember:

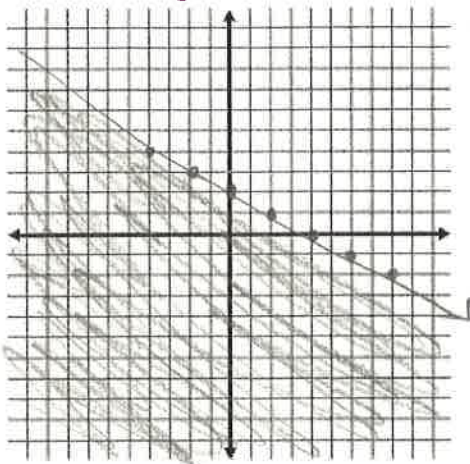
$< >$ dashed $\leftarrow - \rightarrow$
 $\leq \geq$ solid $\leftarrow \rightarrow$

After graphing line, need shade

If divide by a negative flip sign

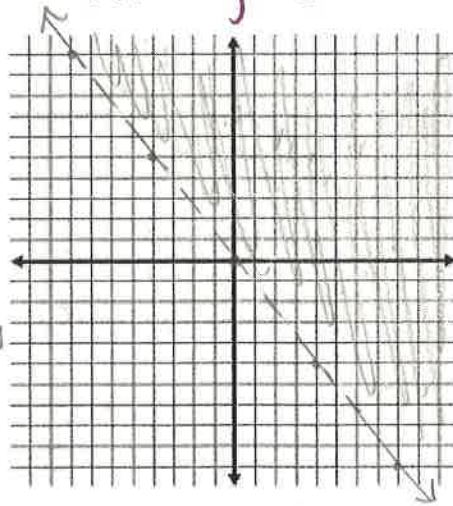
You try...

a) $x + 2y \leq 4$



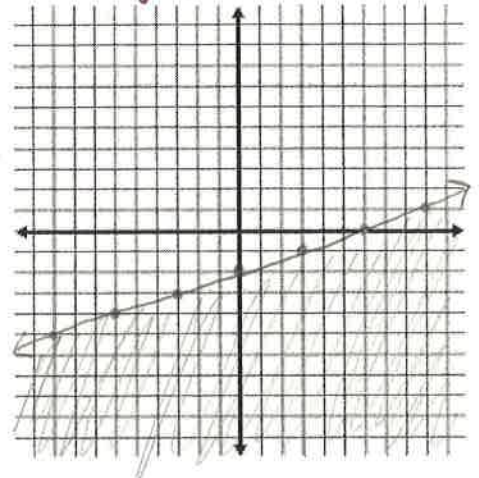
$$\begin{aligned} x + 2y &\leq 4 \\ -x & \quad \quad -x \\ \hline 2y &\leq \frac{-x + 4}{2} \\ y &\leq -\frac{1}{2}x + 2 \end{aligned}$$

b) $5x + 4y > 0$



$$\begin{aligned} 5x + 4y &> 0 \\ -5x & \quad \quad -5x \\ \hline 4y &> \frac{-5x}{4} \\ y &> -\frac{5}{4}x \end{aligned}$$

c) $-3y \geq -x + 6$



$$\begin{aligned} -3y &\geq -x + 6 \\ \div -3 \quad \div -3 \quad \div -3 \\ \hline y &\leq \frac{1}{3}x - 2 \end{aligned}$$

HW: Pg 34 # 7-25 odd
Due Monday