

12/10 Algebra 1 - Downing
Bellwork

Solve each equation for y , then graph

$$\begin{array}{r} x - 2y = 8 \\ -6x \quad -6x \\ \hline \end{array}$$

$$\frac{-2y = -6x + 8}{-2 \quad -2 \quad -2}$$

$$y = 3x - 4$$



$$\begin{array}{r} 2x - y + 4 = 0 \\ -2x \quad -2x \\ \hline \end{array}$$

$$\frac{-y + 4 = -2x + 0}{-4 \quad -4}$$

$$\frac{y = 2x + 4}{-1 \quad -1}$$

$$y = 2x + 4$$

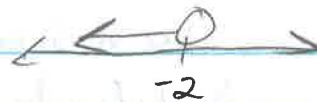


$$-3(x - 2) > 12$$

$$\frac{-3x + 6 > 12}{-6 \quad -6}$$

$$\frac{-3x > 6}{-3 \quad -3}$$

$$x < -2$$



A linear inequality is similar to a linear equation, but the equal sign is replaced with an inequality symbol. A solution of a linear inequality is any ordered pair that makes the inequality true.

Ex) Is the ordered pair a solution? $(-2, 4)$; $y < 2x + 1$

plug in $4 < 2(-2) + 1$

$$4 < -4 + 1$$

$$4 < -3 \text{ False}$$

Ex) $(3, 1)$; $y > x - 4$

$$\begin{array}{l} x \quad y \\ 3 > 1 - 4 \end{array}$$

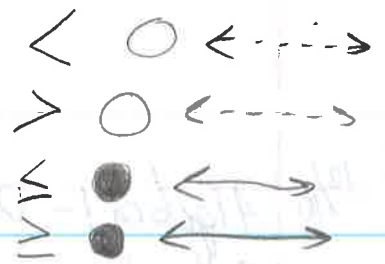
$$3 > -3 \text{ True}$$

$(3, 1)$ is a solution

$(-2, 4)$ is Not a solution

Tricky ones: $5 > 5$?? (False)

$5 \geq 5$?? (True)



Graphing Linear Inequalities

Steps

Example

1) Solve for y (slope-int. form)

$$5x + 2y > -8$$

$$\begin{array}{r} -5x \\ \hline 2y > -5x - 8 \\ \hline y > -\frac{5}{2}x - 4 \end{array}$$

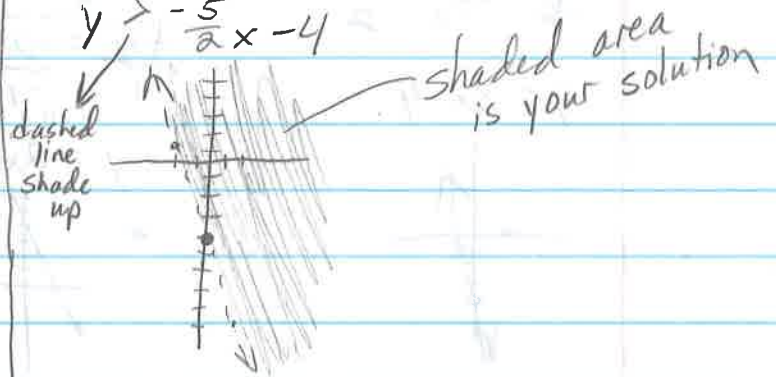
2) Graph the boundary line

Use a solid line for \geq or \leq

Use a dashed line for $>$ or $<$

3) Shade above the line
for $>$ or \geq

Shade below the line
for $<$ or \leq



WS 5.6 Linear Inequalities

#1, 7, 11, 12, 15, 19, 21 done together in class

HW - Evens only