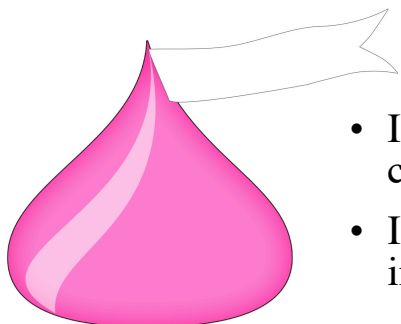


Algebra I

Lesson 6-6



- I can graph inequalities on the coordinate plane.
- I can solve real-world problems involving linear inequalities.

The solution set of an inequality in two
variables is the set of all ordered
pairs that satisfy the inequality. Like a
linear equation in two variables,
the solution set is graphed on a coordinate
plane.

From the set $\{(1, 6), (3, 0), (2, 2), (4, 3)\}$, which ordered pairs are part of the solution set for $3x + 2y < 12$?

x	y	$3x + 2y < 12$	T or F
1	6	$3(1) + 2(6) < 12$ $3 + 12 < 12$	F
3	0	$3(3) + 2(0) < 12$ $9 + 0 < 12$	T
2	2	$3(2) + 2(2) < 12$ $6 + 4 < 12$	T
4	3	$3(4) + 2(3) < 12$ $12 + 6 < 12$	F

$$\{(3, 0), (2, 2)\}$$

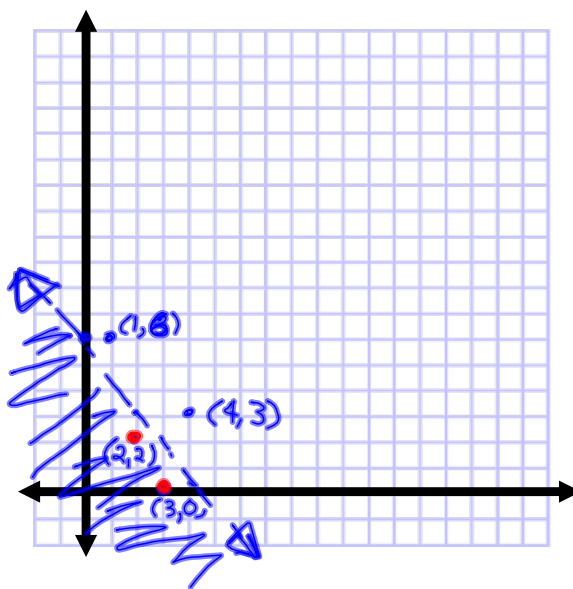
$$3x + 2y < 12$$

$$3x + 2y = 12$$

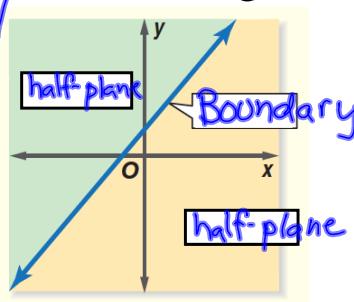
$$\begin{array}{r} -3x \\ \hline 2y = -3x + 12 \end{array}$$

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

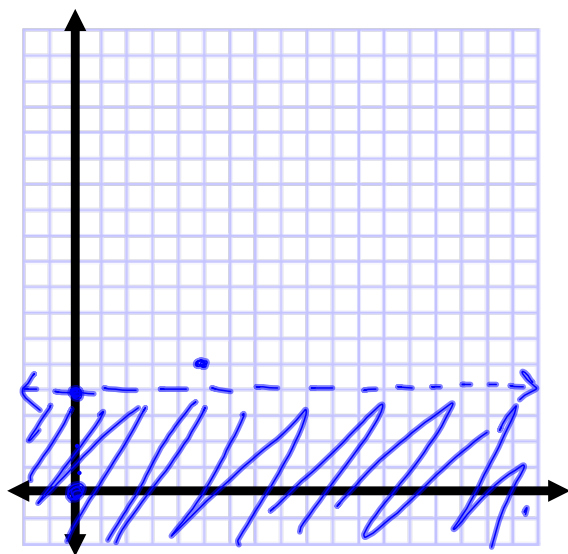
$$y = -\frac{3}{2}x + 6$$



The solution set for an inequality in two variables contains many ordered pairs when the domain and range are the set of real numbers. The graphs of all of these ordered pairs fill a region on the coordinate plane called a half-plane. An equation defines the boundary or edge for each half-plane.



$$y < 4$$



$$y = 4$$

$$y < 4$$

$$(0, 0)$$

$$0 < 4$$

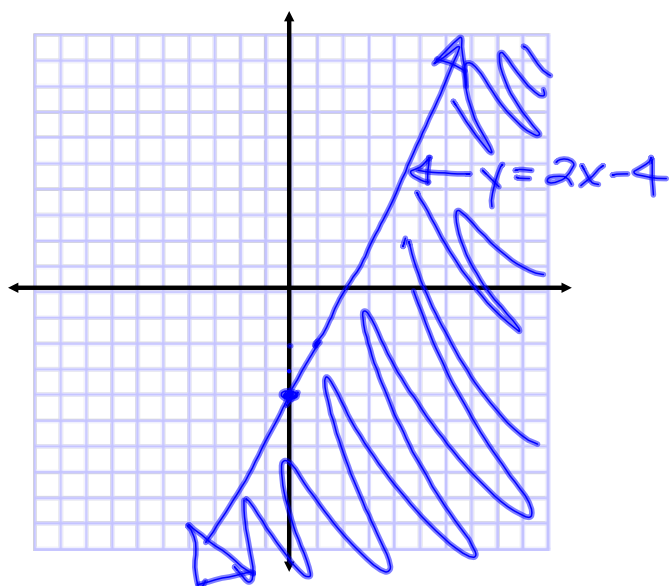
T

$$(5, 5)$$

$$5 < 4$$

F

Graph: $y - 2x \leq -4$



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

$(0,0)$ $y - 2x \leq -4$

$0 - 2(0) \leq -4$

$0 \leq -4$ (3,0)

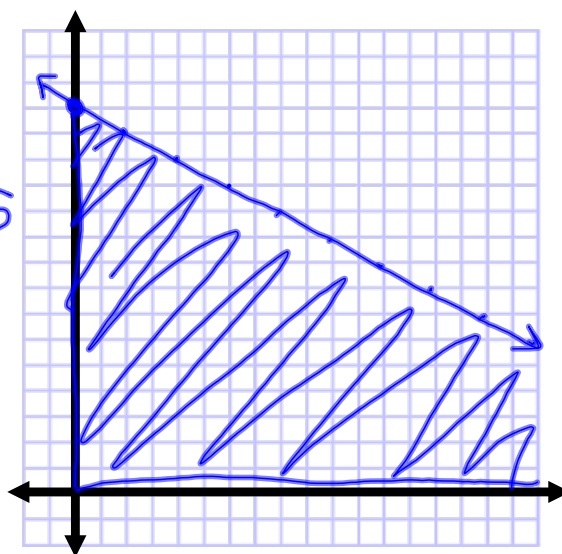
F $0 - 2(3) \leq -4$
 $-6 \leq -4$
 T

Rosa Padilla sells radio advertising in 30-second and 60-second time slots. During every hour, there are up to 15 minutes available for commercials. How many commercial slots can she sell for one hour of broadcasting?

$$\frac{1}{2}x + y \leq 15$$

$$\begin{array}{r} \frac{1}{2}x + y \leq 15 \\ -\frac{1}{2}x \quad -\frac{1}{2}x \\ \hline y \leq -\frac{1}{2}x + 15 \end{array}$$

$(0,0)$
 $\frac{1}{2}(0) + 0 \leq 15$
 $0 \leq 15$
 T





Assignment:

Pgs. 356-357 #12-24 even, 34-39, 42-44

