

6.1 Graphing Linear Inequalities in Two Variables

Linear Inequality _____

Solution Set _____

Explore: For which inequalities is $(3, 1)$ a possible solution? Justify.

a) $13 - 3x > 4y$

c) $2y - 5 \leq x$

b) $y + x < 10$

d) $y \geq 9$

Continuous _____

Discrete _____

Graphing:

1. $>$

2. $<$

3. $\geq$

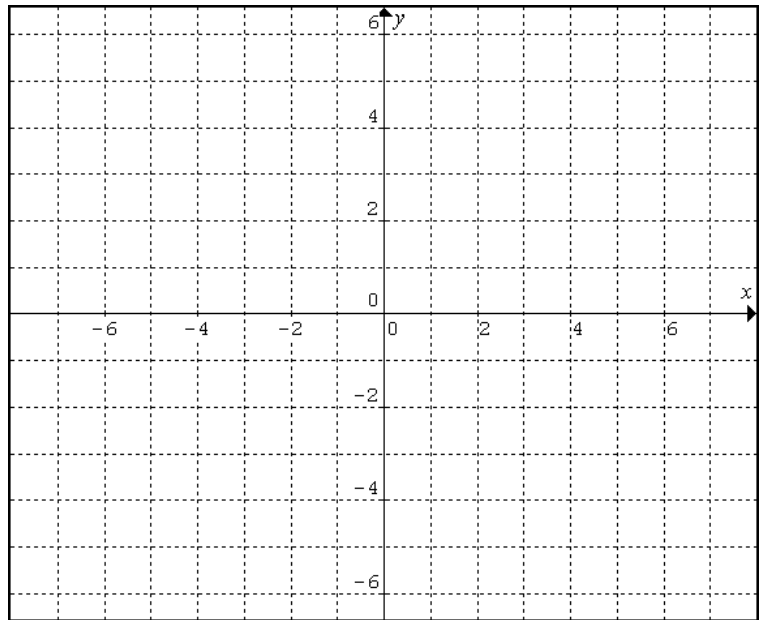
4. $\leq$

Solution Region _____

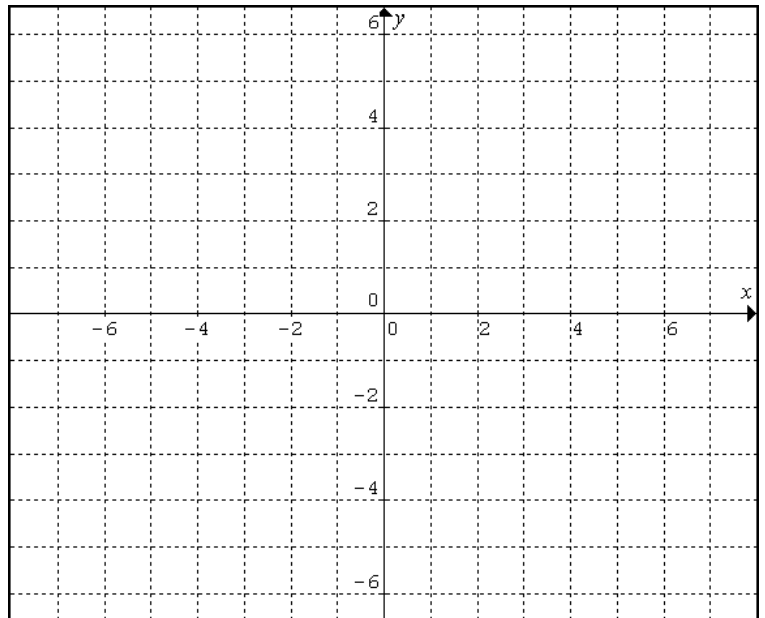
Half Plane _____

Example 1: Graph the solution set for each linear inequality

a) $-2x + 5y \geq 10$.



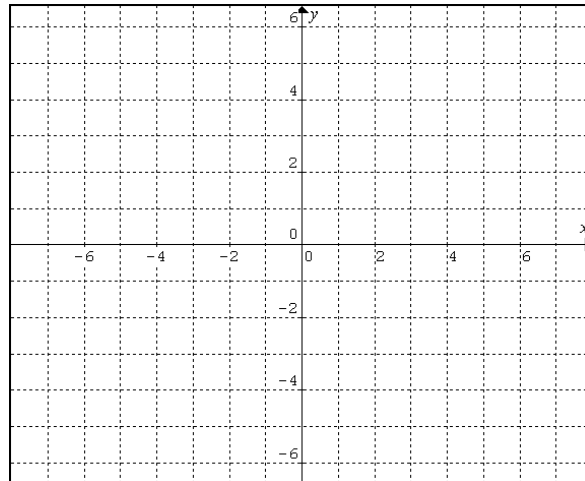
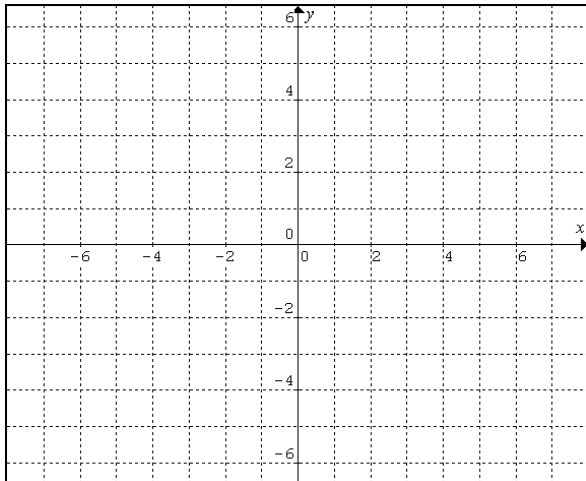
b) $3x - y > 6$



Example 2: Graph the solution set for each linear inequality on a Cartesian plane.

a) $\{(x, y) | x - 2 > 0, x \in \mathcal{R}, y \in \mathcal{R}\}$

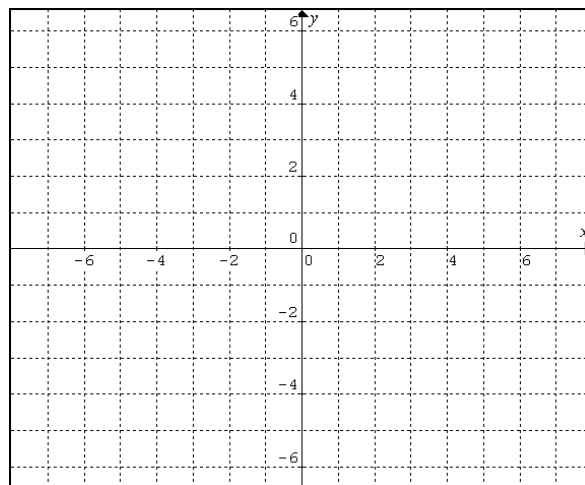
b) $\{(x, y) | -3y + 6 \geq -6, x \in I, y \in I\}$



Example 3: A sports store has a net revenue of \$100 on every pair of downhill skis sold and \$120 on every snowboard sold. The manager's goal is to have a net revenue of more than \$600 a day from the sales of these two items.



What combinations of ski and snowboard sales will meet or exceed this daily sales goal? Choose two combinations that make sense, and explain your choices.



Need to Know:

A _____ set contains all of the points in the solution region

A _____ set contains some of the points (with whole number or integer coordinates)

When no domain, range, or context is given, is set of _____

First graph the boundary ...

$<$ or $>$, draw a _____ line

$\leq$ or $\geq$, with continuous solution set, draw a _____ line

$\leq$ or $\geq$, with discrete solution set, draw a _____ line

To complete the graph ...

_____ not on the boundary to see if it is in the solution region

if it is, shade the half plane _____, if not, shade the _____

if the solution set is discrete, _____ with whole - number or integer coordinates