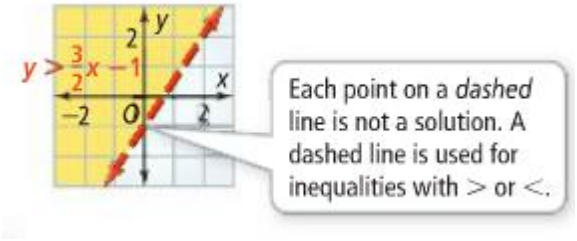
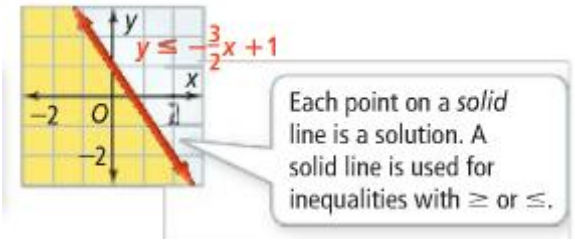
Math 1

6.5 Linear Inequalities

Linear Inequalities: An inequality in two variables whose graph is a region of the coordinate plane that is_____. Each point in the region is a_____.

A linear inequality in two variables has an _____. These solutions can be represented in the coordinate plane as the set of all points on _____.





Identifying Solutions of a Linear Inequality

Is the ordered pair a solution of $y > x - 3$?

a) (1, 2)

b) (-3, -7)

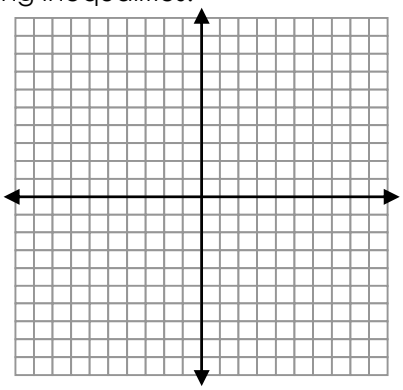
Graphing an Inequality in Two Variables

- Use a dashed line to show that the points _____.
- The direction of the inequality symbol determines _____.
  - If the symbol is or , shade _____ the boundary line.
  - If the symbol is or , shade _____.

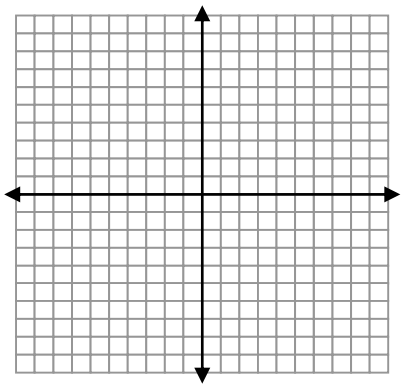
Inequality Type:	Less Than	Greater Than	Less Than or Equal To:	Greater Than or Equal To:
Line and Shade Type:				

Graph the following inequalities.

a) $y > x - 2$



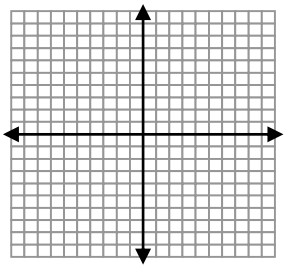
b) $y \leq \frac{1}{2}x + 1$



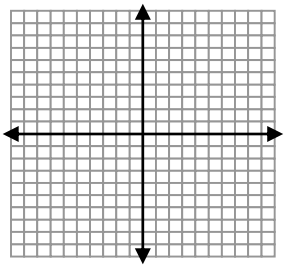
Graphing a Linear Inequality in One Variable

What is the graph of each inequality in the coordinate plane?

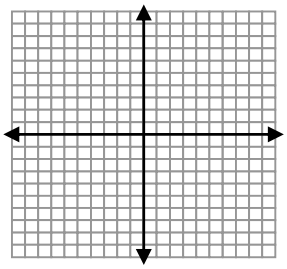
a) $x > -1$



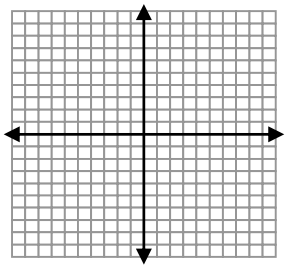
b) $x \leq 6$



c) $y > -4$



d) $y \leq 2$



Rewriting to Graph an Inequality

An interior decorator is going to remodel a kitchen. The wall above the stove and the counter is going to be redone as shown. The owners can spend $420 or less. Write a linear inequality and graph the solutions. What are the three possible prices for the wallpaper and tiles?

Set Up:

Let _____ = _____

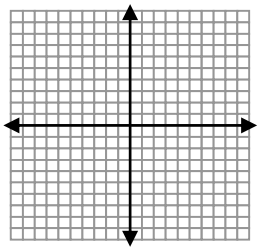
Let _____ = _____

Equations:

_____

_____

SOLVE:



For a party, you can spend no more than $12 on nuts. Peanuts cost $2/lb. Cashews cost $4/lb. What are three possible combinations of peanuts and cashews you can buy?

Set Up:

Let _____ = _____

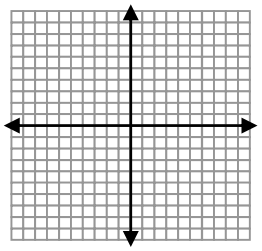
Let _____ = _____

Equations:

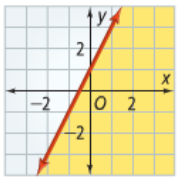
_____

_____

SOLVE:



Write an inequality from a graph.



You are writing an inequality from a graph. The boundary line is dashed and has a slope of 1/3 and a y-intercept of -2. The area above the line is shaded. What is the equation of the line?

Math 1

6.6 Systems of Linear Inequalities

The _____is the overlapping shaded regions.

To find this region:

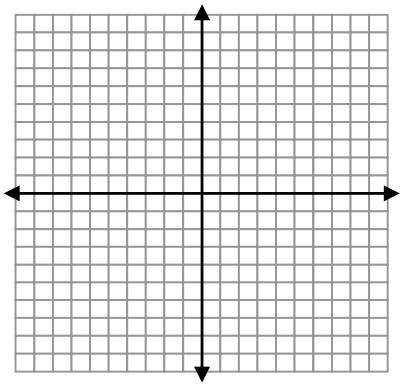
1) Solve for __
2) Find __and ___ intercepts, and graph using those
3) Show _____ and _____ lines
4) _____ each inequality in the proper direction
5) Shade the overlapping region (the solution set)_____ !

Solution Possibilities:

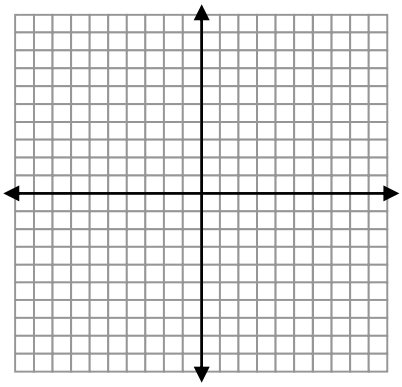
1) *Intersecting Regions:* Overlapping shaded region is the solution

2) *Separate Regions:* No solution exists

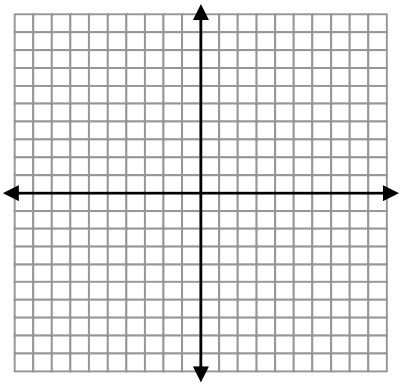
Example 1: $x \geq 2$, $y > 3$



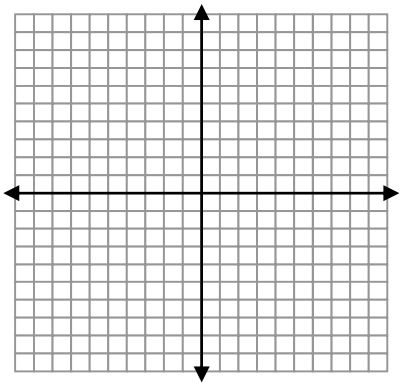
Example 2: $y < 2 - x$, $y > x + 4$



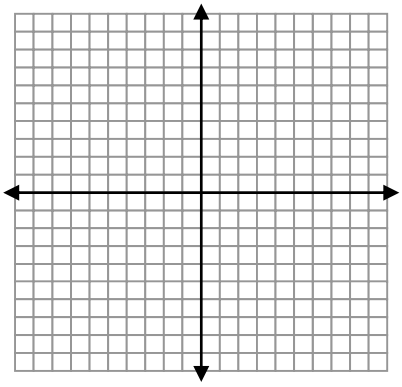
Example 3: $4x - 3y < 7$, $2y - x < -6$



Example 4: $y < -\frac{1}{3}x + 1$, $-3y < x - 6$



Example 5: $y \leq -\frac{4}{3}x$, $y \geq -x$



Example 6: $-x < 4 - y$, $y \geq x - 6$