Name:_____ Date:_____

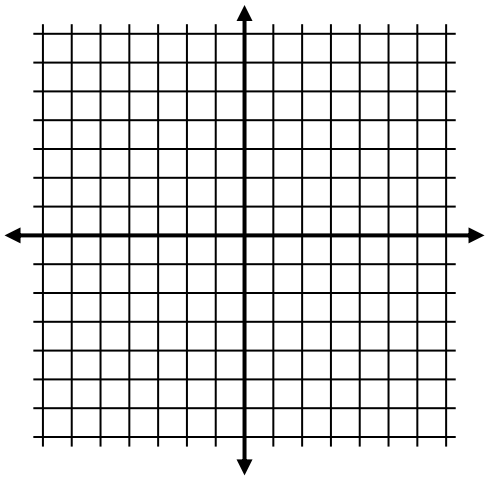
Notes
Algebra Section 7.6
Pages 466-472

Goal: "Solve Systems of Linear Inequalities"

Remember:

Graph $x - y > 7$

Where are the solutions?
Graph, dotted line, shade.



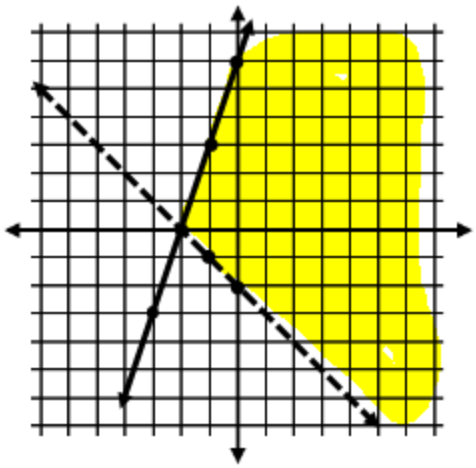
Now graph $2x + y \leq 6$

Where are the solutions to the **system**?

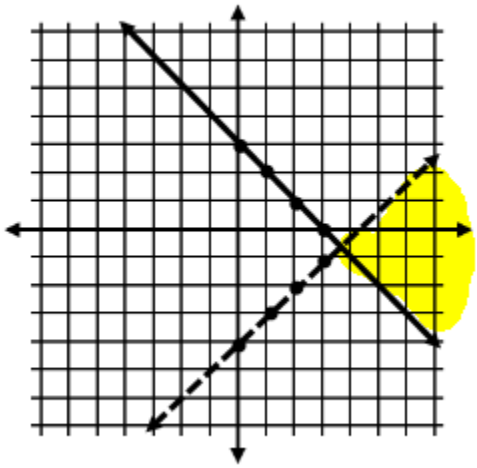
In the overlapping shaded region.

Graph the following systems of inequalities: (only the overlapping region is highlighted)

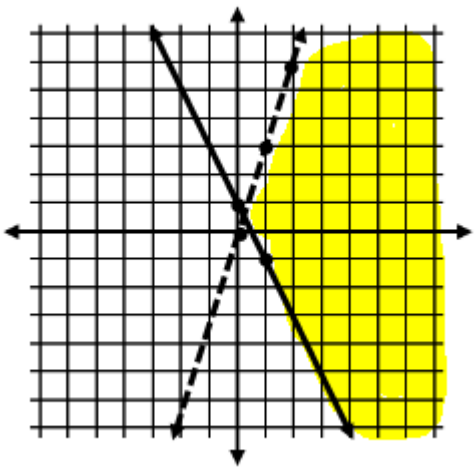
Ex: $y > -x - 2$
$y \leq 3x + 6$



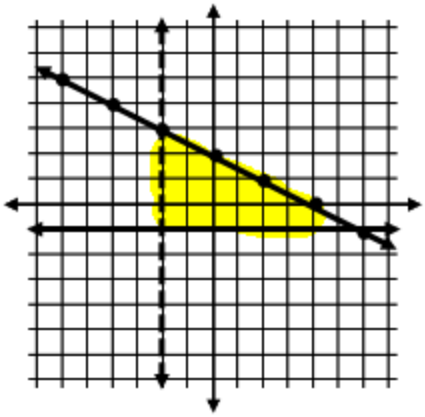
Ex: $y < x - 4$
$y \geq -x + 3$



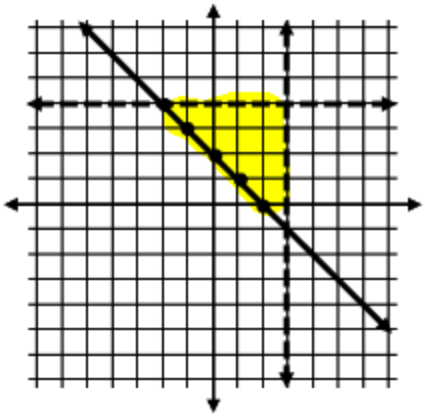
Ex: $y < 3x$
$y \geq -2x + 1$



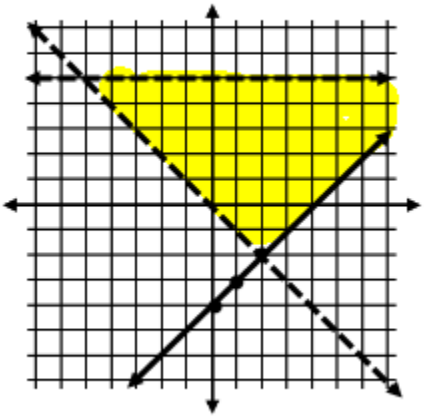
Ex: $y \geq -1$
$x > -2$
$x + 2y \leq 4$



Ex: $y \geq -x + 2$
$y < 4$
$x < 3$

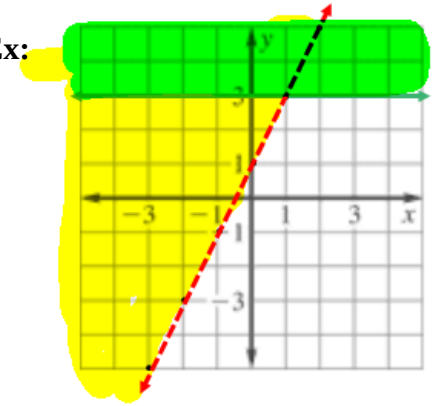


Ex: $y > -x$
$y \geq x - 4$
$y < 5$



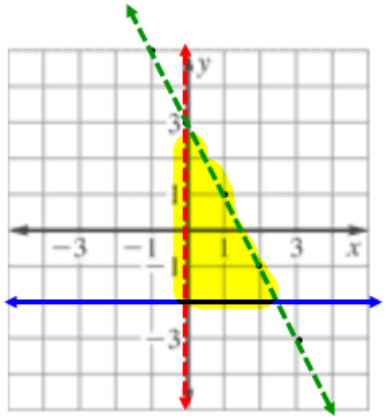
Write the linear system represented by the shaded region.

Ex:



$y \geq 3$ and $y > 2x + 1$

Ex:

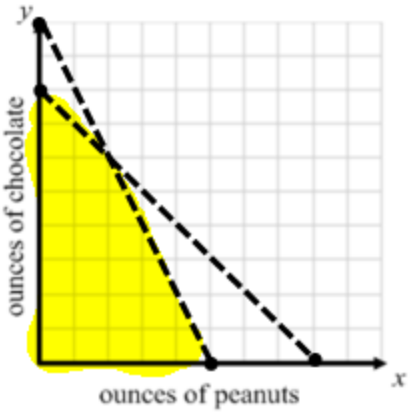


$y \geq -2$, $x > 0$ and $y < -2x + 3$

Write and solve a system of linear inequalities

Ex: For a hiking trip, you are making a mix of x ounces of peanuts and y ounces of chocolate pieces. You want the mix to have less than 70 grams of fat and weigh less than 8 ounces. An ounce of peanuts has 14 grams of fat and an ounce of chocolate pieces has 7 grams of fat. Write and graph a system of inequalities that models the situation.

$x + y < 8$
$14x + 7y < 70$



Ex: The NCAA regulates the lengths of aluminum bats used by college baseball teams. The NCAA states that the length (in inches) of the bat minus the weight (in ounces) of the bat cannot exceed 3. Bats can be purchased at lengths from 26-34 inches.

a. Write and graph a system of linear inequalities that describes the information given above.
$x - y \leq 3$
$x \geq 26$
$x \leq 34$

b. A sporting goods store sells an aluminum bat that is 31 inches long and weighs 25 ounces. Use the graph to determine if this bat can be used by a player on an NCAA team.

No, it is not in the shaded region and if you subtract 25 from 31 you get 6, which exceeds 3.