1. You think that the perfect mix for chocolate milk is when the milk contains 42% chocolate. In the refrigerator you have some chocolate milk that is 32% chocolate and some that is 48% chocolate. Write and solve a system of equations to find the number of ounces of each of these should you mix in order to get 50 ounces of your perfect mixture.

x ounces of ~~34%~~ 32% = 18.75oz

y ounces of 48% = 31.25oz

Total oz $(x + y = 50) \cdot .48$

% choc. $.32x + .48y = 21$

$.48x + .48y = 24$

$- \; .32x + .48y = 21$

$.16x = 3$

$x = 18.75$

The graph of a linear inequality:

- A boundary line that is either dashed or solid.
- The SOLUTION REGION is all the points on one side of the boundary line that make the inequality true.

Which side of the line to shade for an inequality?

If inequality is in Slope-Intercept Form:

- $y > mx + b$ or $y \geq mx + b$ means to shade above the line.

If you say " y is greater" shade above the line.

- $y < mx + b$ or $y \leq mx + b$ means to shade below the line.

If you say " y is less" shade below the line.

Which side to shade?

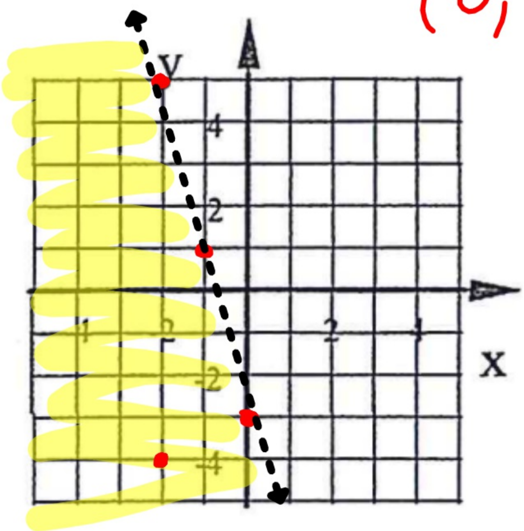
If inequality is in Standard Form: $Ax + By = C$

Pick any point NOT on the line and test it in the inequality.

- If It makes the inequality true shade the side with that point
- If it makes the inequality false shade the other side of the line.

2. Graph each inequality on the x-y plane. Shade the solution region with a highlighter or colored pencil.

a) $y < -4x - 3$



$(0, -3)$

$-3 < -4(0) - 3$

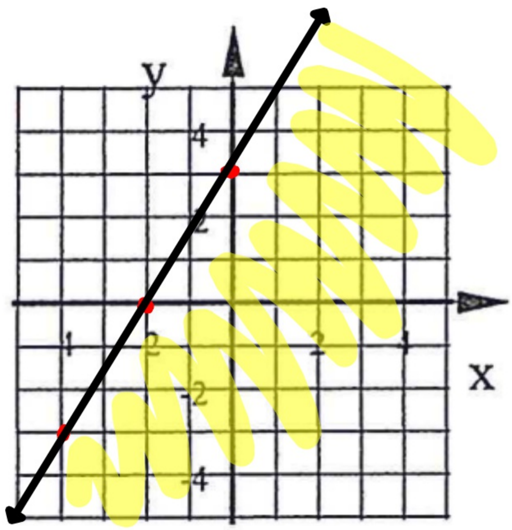
$-3 < 0 - 3$

$-3 < -3$ X

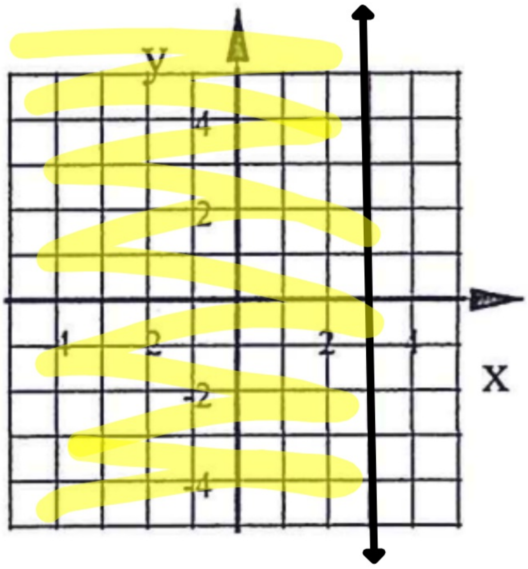
b) $24x - 16y \geq -48$

$-16y \geq -24x - 48$

$y \leq \frac{3}{2}x + 3$

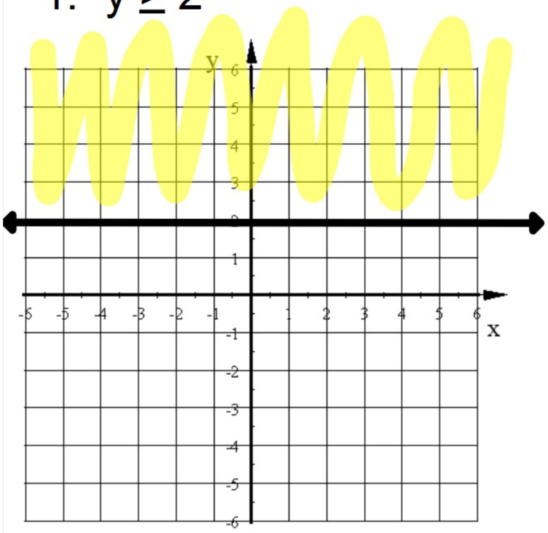


c) $x \leq 3$

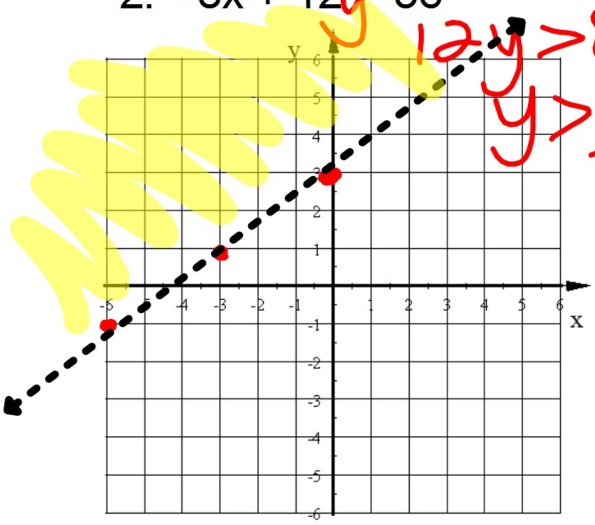


Graph each inequality.

1. $y \geq 2$



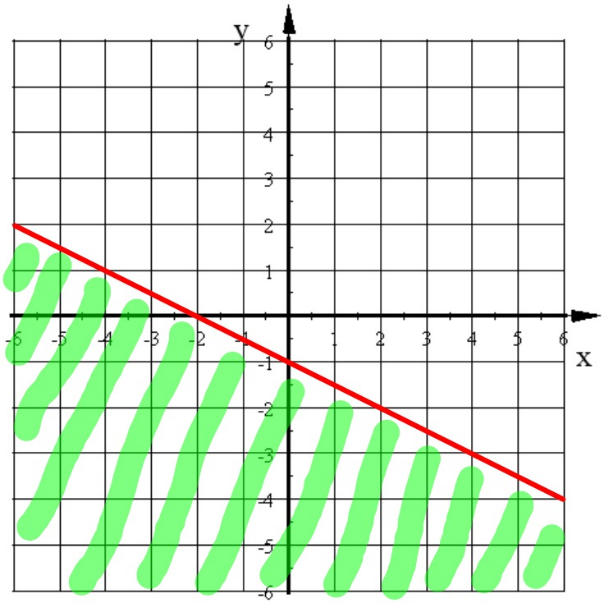
2. $-8x + 12y > 36$



$12y > 8x + 36$

$y > \frac{2}{3}x + 3$

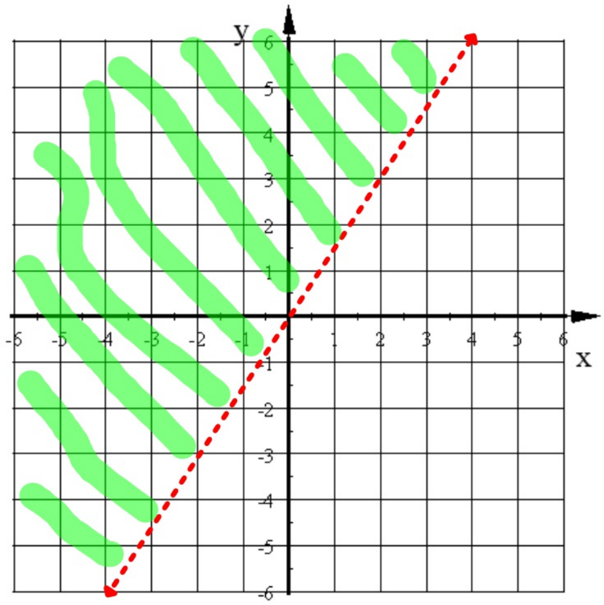
Write the equation of this inequality.



$y \leq -\frac{1}{2}x - 1$

Write the equation of this inequality.

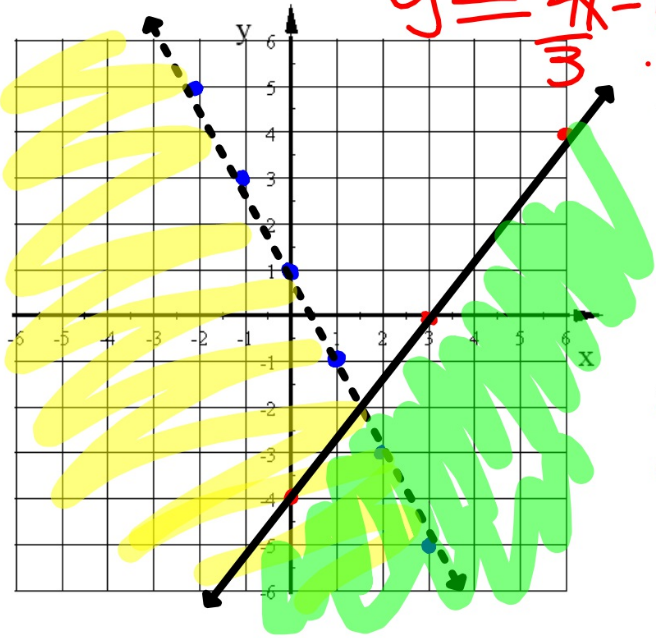
$y > \frac{3}{2}x$



Graph these two inequalities on the same graph.

$y < -2x + 1$ $\qquad$ $8x - 6y \geq 24$

$y \leq \frac{4x}{3} - 4$



System of Inequalities :

Two inequalities on the same graph.

Solution to a system of Inequalities:

The area that gets shaded twice.

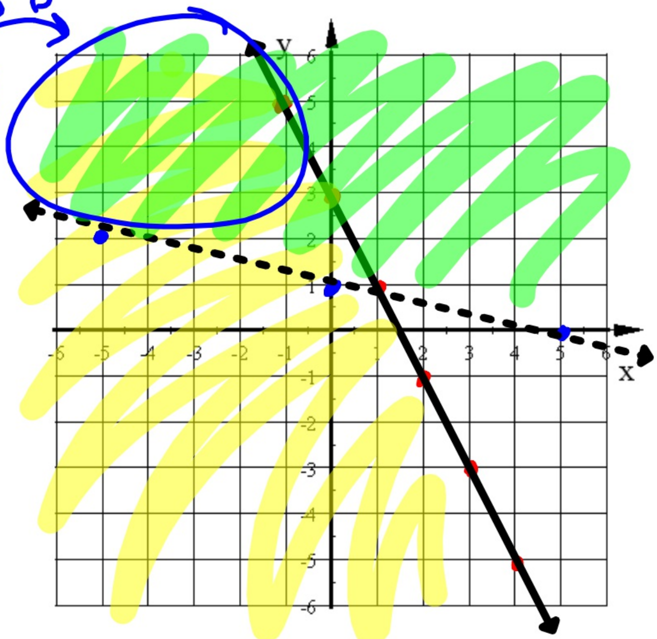
Graph this system of inequalities:

$y \leq -2x + 3$

$3x + 15y > 15$

$y > -\frac{1}{5}x + 1$

this is the sol



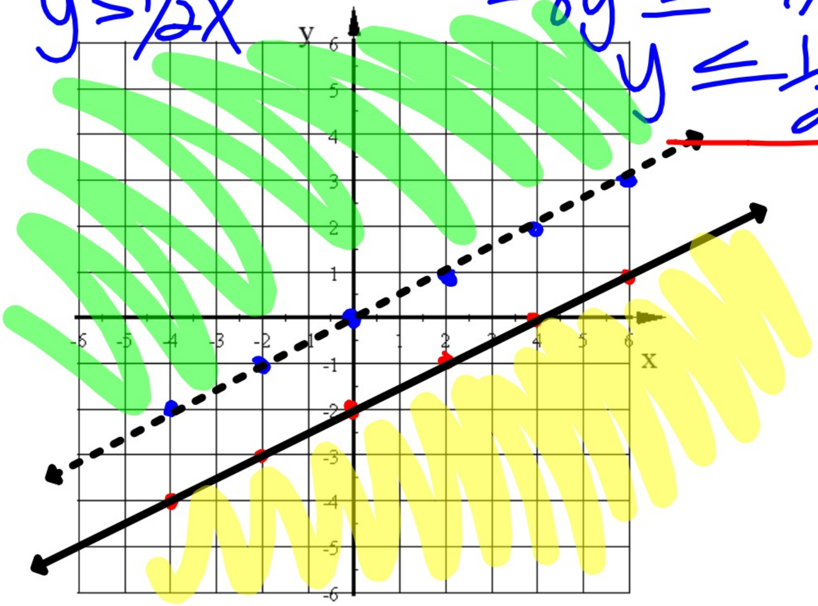
Graph this system of inequalities:

y > 0.5x $\qquad$ 4x - 8y ≥ 16

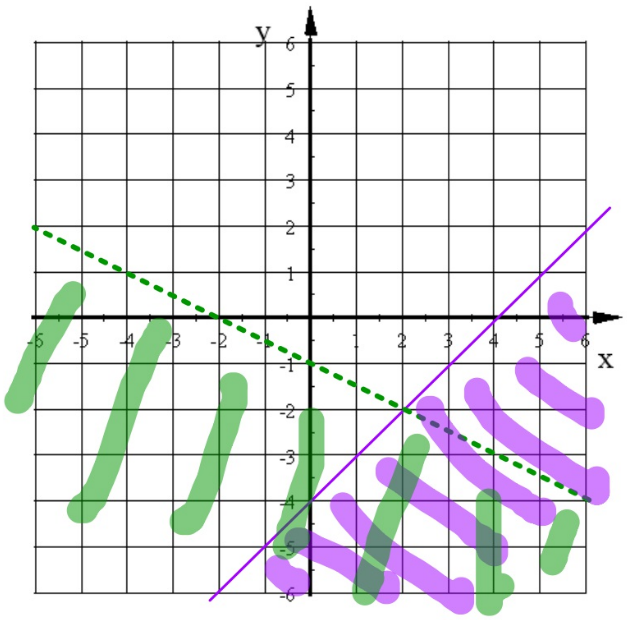
$y > \frac{1}{2}x$

$-8y \geq -4x + 16$

$y \leq \frac{1}{2}x - 2$



Model this graph with a system of inequalities.



$y < -\frac{1}{2}x - 1$

$y \leq x - 4$

Is (-4, 3) a solution to this system of inequalities?

$y > 2x + 5$

$2x + 2y > 3$

$3 > 2(-4) + 5$ ✓

$2(-4) + 2(3) > 3$ ✗

(-4,3) Not a sol,

Basketballs cost $24 each and footballs cost $18 each.
You can spend no more than $144.
You need at least 3 basketballs.

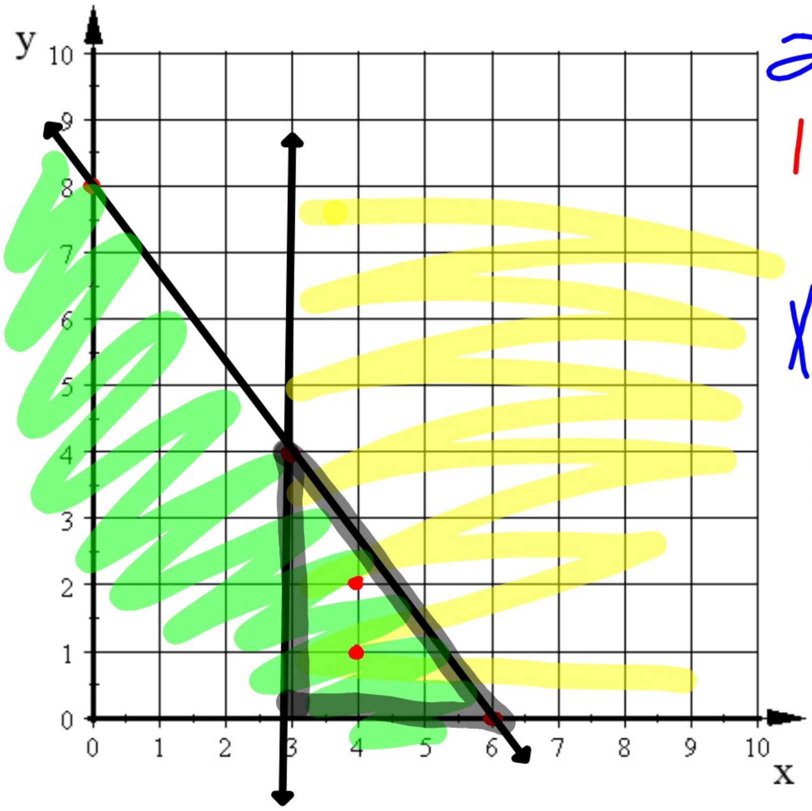
x = basket   y = fballs

1. Write a system of inequalities to model this situation.

$ $24x + 18y \le 144$ $x \ge 3$

2. Graph this system of inequalities.

3. Find as many combinations of basketballs and footballs that meet both conditions.



$24x + 18y \le 144$

$18y \le -24x + 144$

$y \le 4/3x + 8$

$x \ge 3$

$(4, 1)$

b, f

$24 \cdot 4 + 18$

$96 + 18$

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