

## Linear Inequalities &amp; Systems of Inequalities

SHOW YOUR WORK!!

- 1) State whether the graph of each linear inequality will have a dashed or solid line AND whether you shade above or below the line.

a.  $y < 14x - 7$

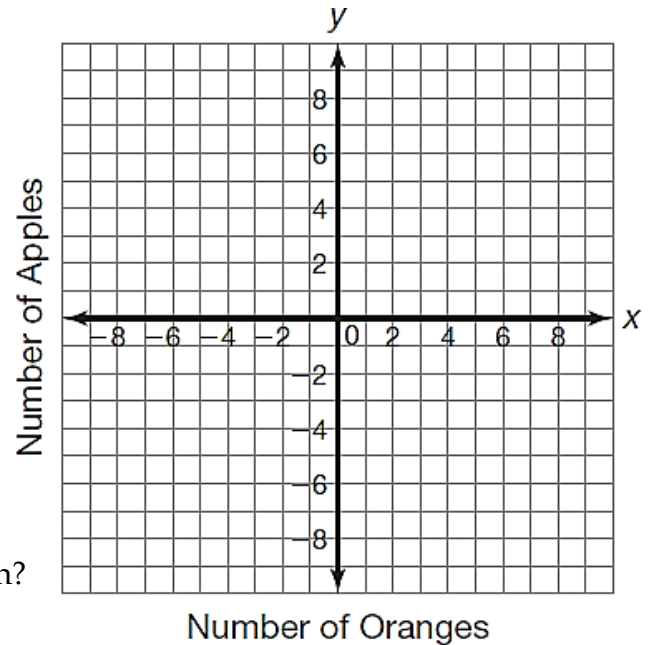
b.  $y + 9x \geq 3$

- 2) Sophia has \$2 to buy oranges and apples. Oranges cost \$0.50 each and apples cost \$0.25 each.

- a. Write and graph an inequality to represent the possible ways Sophia could spend her \$2.

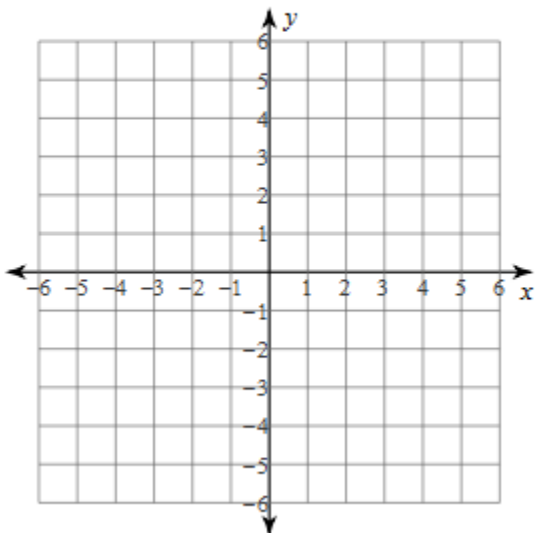
- b. Is the ordered pair (4, 3) a solution for the problem situation? *Show your work algebraically.*

- c. Does the ordered pair (-2, -3) make sense as a solution in the context of this problem situation? Why or why not?

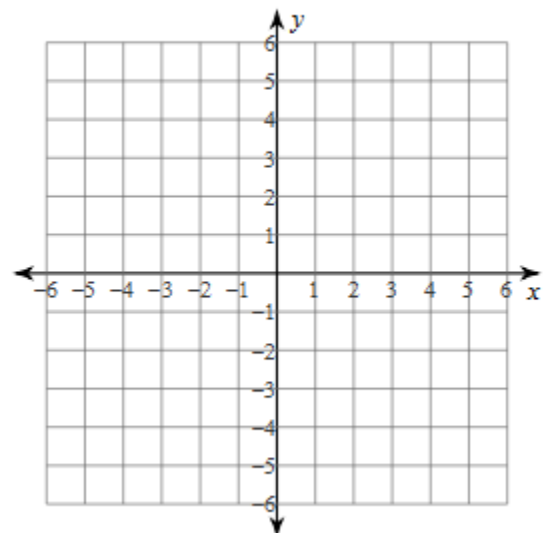


Graph each of the linear inequalities.

3)  $y < -\frac{2}{3}x + 3$



4)  $x - 5y \geq -10$



Write a system of linear inequalities that represents the problem situation. Remember to define your variables.

5) Pablo's pickup truck can carry a maximum of 1000 pounds. He is loading his truck with 20-pound bags of cement and 80-pound bags of cement. He hopes to load at least 10 bags of cement into his truck.

6) Sofia is making flower arrangements to sell in her shop. She can complete a small arrangement in 30 minutes that sells for \$20. She can complete a larger arrangement in 1 hour that sells for \$50. Sofia hopes to make at least \$350 during her 8-hour workday.

Determine whether each given point is a solution to the system of linear inequalities.

7) 
$$\begin{cases} x + 5y < -1 \\ 2y \geq -3x - 2 \end{cases}$$

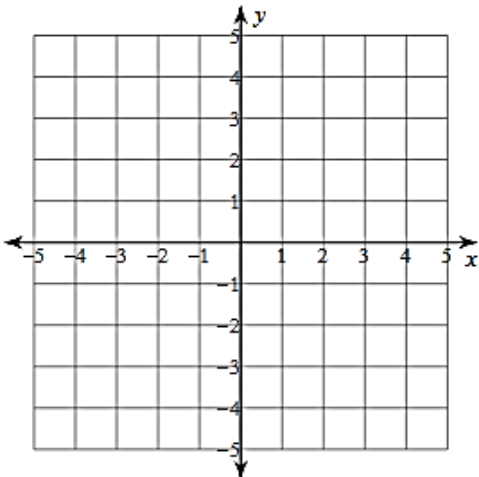
Point: (0, -1)

8) 
$$\begin{cases} 4x + y < 21 \\ \frac{1}{2}x \leq 36 - 5y \end{cases}$$

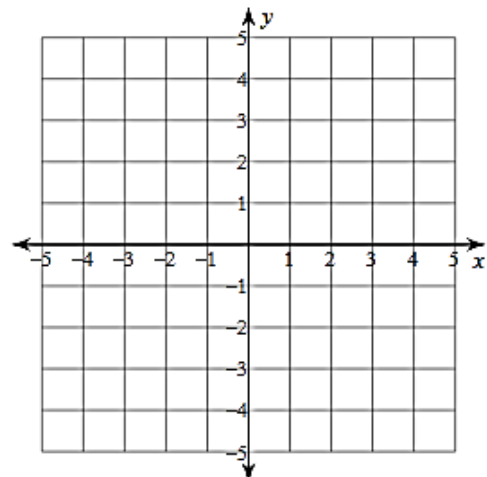
Point: (3, 7)

Graph each system of linear inequalities.

9) 
$$\begin{cases} y \leq -2x - 3 \\ y < -\frac{2}{3}x + 1 \end{cases}$$

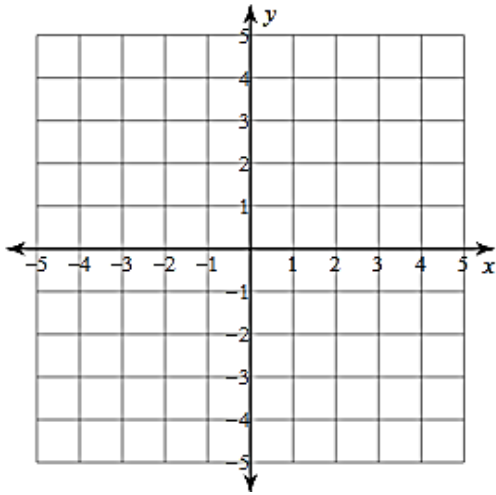


10) 
$$\begin{cases} y \geq -2x + 2 \\ y < -2 \end{cases}$$



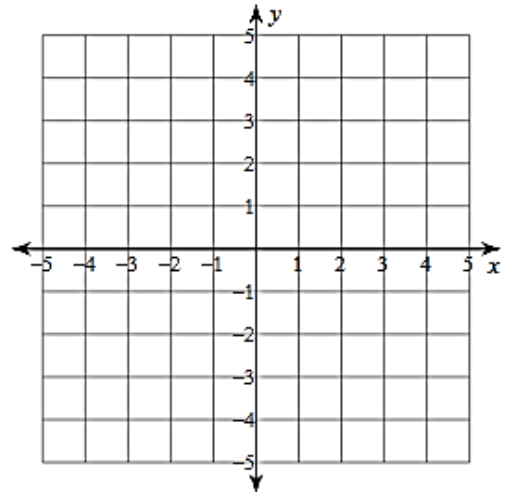
$$11) y > -\frac{1}{2}x - 2$$

$$y \leq -\frac{1}{2}x + 3$$

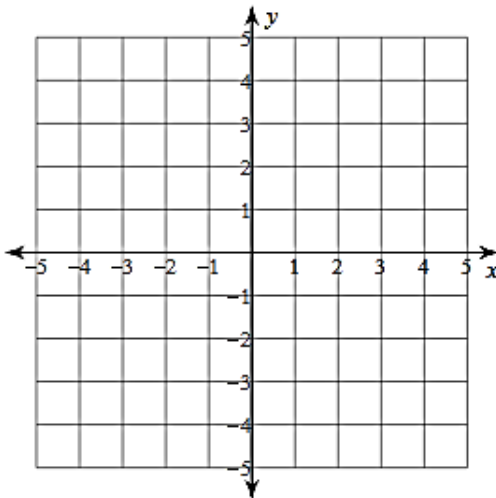


$$12) y \leq \frac{1}{3}x - 2$$

$$y > \frac{1}{3}x + 1$$



$$13) x + y \leq 1$$
$$x - 3y \leq 9$$



$$14) x + 2y < 4$$
$$2x - y \geq 3$$

