1. Is $(10,-5)$ a solution to $\mathbf{3 x + 4 y}<\mathbf{1 0}$ ? Justify your response.
2. Is $(8,0)$ part of the solution set of the inequality shown here? Explain your reasoning.

3. Consider the graph pictured to the right.
a. State one point that is part of the solution set.
b. State one point that is not part of the solution set.
c. Is the point $(4,3)$ part of the solution set? Explain.

4. Graph the inequality $2 x-4 y \geq 4$.

5. Graph each system of inequalities.
a. $y-x>-3 \quad y \leq 3 x+1$

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b. $3 y-x<12 \quad x \leq 4$

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6. Write an inequality that represents the graph shown here.

7. Write a system of inequalities that represents the graph shown here.

8. Given the system: $\mathbf{y} \geq-\mathbf{3 x + 1}$

$$
y<x-2
$$

a. Use your graphing calculator to determine which quadrant(s) of the coordinate plane the solution is located. State the quadrant(s).

Helpful Hint: The quadrants of a coordinate plane are pictured here.

b. Is the point $(8,6)$ part of the solution to the system? Justify your response.
9. Carly got a job at an ice cream shop for the summer. Her first task is to order boxes of small ice-cream cups and boxes of large ice-cream cups. Each box of small cups costs $\$ 100$ and each box of large cups costs $\$ 150$. A maximum of $\$ 1200$ has been budgeted for cups and the storage room can only hold up to 10 boxes.
a. Write a system of linear inequalities that can be used to represent the situation. Use $\boldsymbol{x}$ to represent the number of boxes of small cups and $\boldsymbol{y}$ to represent the number of boxes of large cups.
b. Graph the system. Remember to label all parts of your graph.

c. State one solution to the system. Explain its meaning in the context of the situation.

