7.2 Systems of Linear Equations (HW 2)   Name _____

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

1. Jamal runs the bouncy house at a festival. The bouncy house can hold a maximum of 1200 pounds at one time. He estimates that adults weigh approximately 200 pounds and children under 16 weigh approximately 100 pounds. Jamal charges adults $3 each and children $2 each for a session of bounce time. Jamal hopes to charge at least $24 for each session.

2. Carlos works at a movie theater selling tickets. The theater has 300 seats and charges $7.50 for adults and $5.50 for children. The theater expects to make at least $2000 for each showing.

3. The maximum capacity for an average passenger elevator is 15 people and 3000 pounds. It is estimated that adults weigh approximately 200 pounds and children under 16 weigh approximately 100 pounds.

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

4. $\begin{cases} 2x - y > 4 \\ -x + y \leq 7 \end{cases}$

   Point: $(-2, -10)$
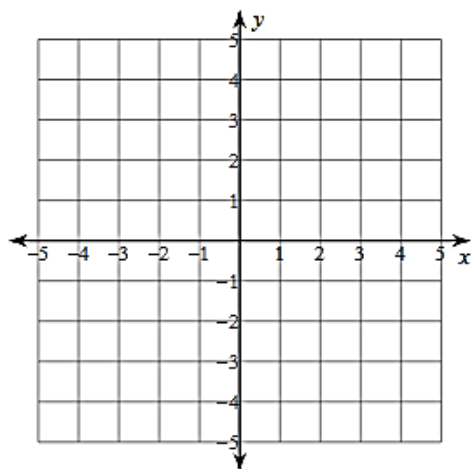
5. $\begin{cases} 15x + 25y \geq 300 \\ 20x + 30y \leq 480 \end{cases}$

   Point: $(14, 8)$

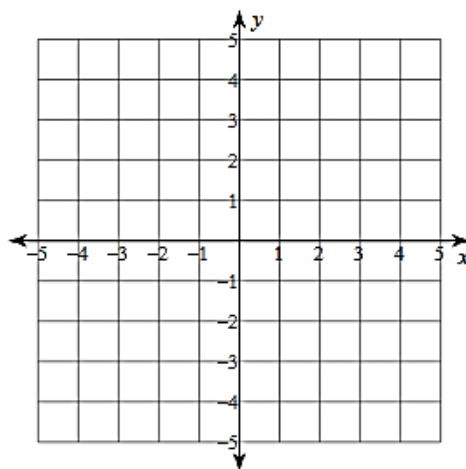Graph each system of linear inequalities and identify two solutions.
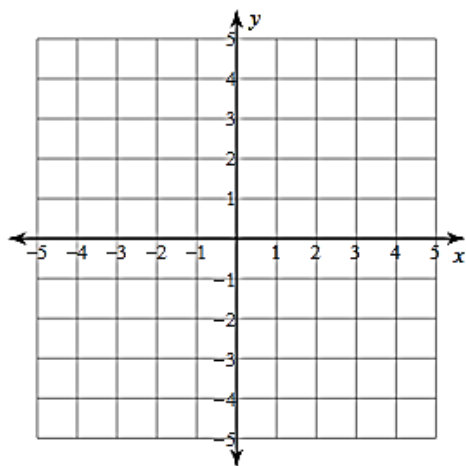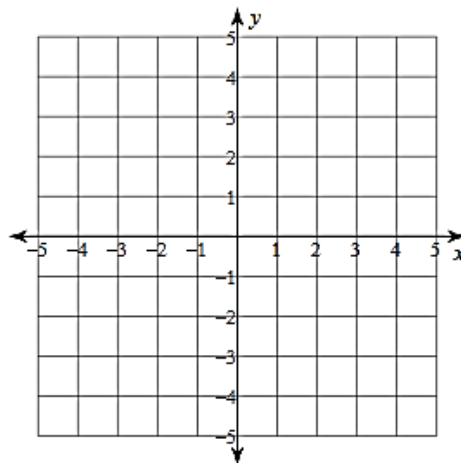
6) $y < 2x + 2$

$y \le \dfrac{1}{2}x - 1$

7) $x \ge 2$

$y > \dfrac{1}{2}x + 1$

8) $y > \dfrac{2}{3}x + 1$
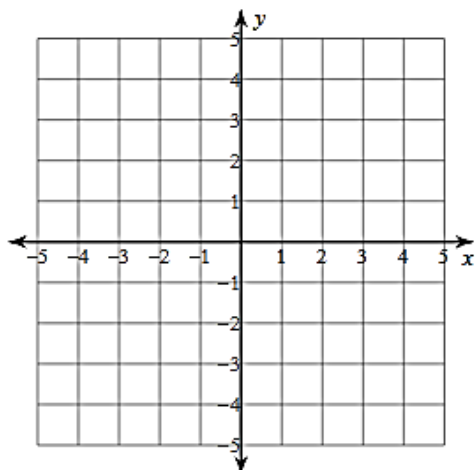
$y \ge 2x - 3$

9) $y < -2x - 2$

$y \ge -2x + 1$

10) $x - y < 1$

$x + 2y > 4$

11) $x + y \le 2$

$x - 3y \ge 6$