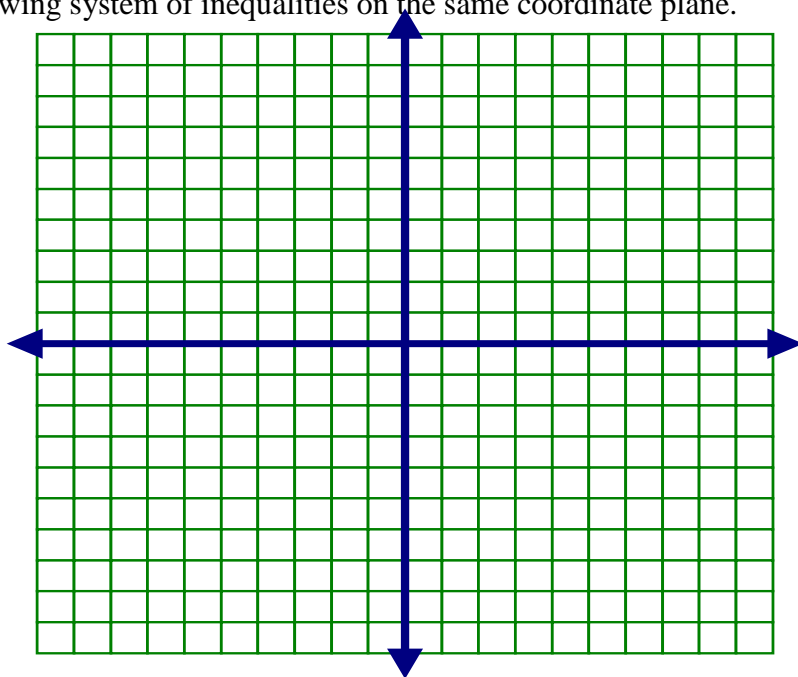


AIM: Graphing Systems of Linear Inequalities

Do Now: On the set of axes below, graph the following system of inequalities on the same coordinate plane.

$$y < x + 4$$

$$2y \geq -2x - 6$$



- a) Label the solution set with the letter “S”.
- b) State a solution that is in the Solution Set:
- c) Check: $y < x + 4$ Check: $2y \geq -2x - 6$

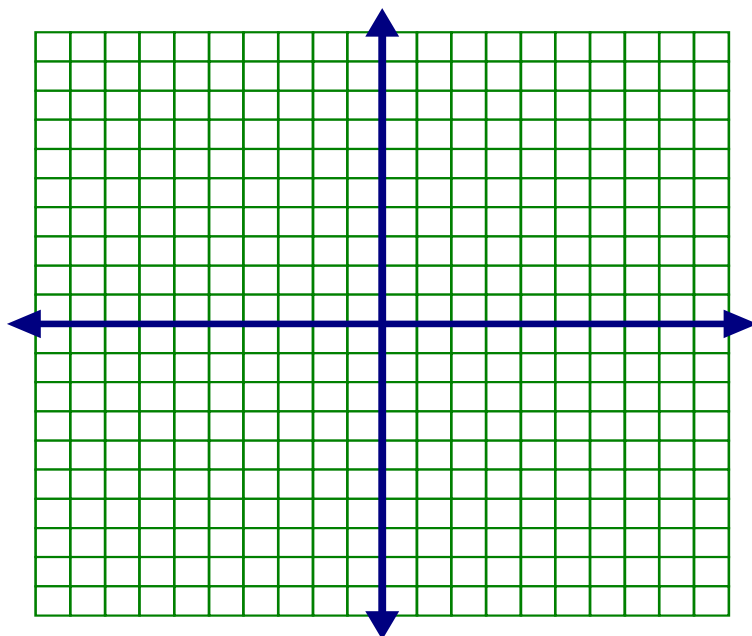
Steps for Solving Systems of Linear Inequalities

1. Solve both inequalities for y
2. Graph, shade, and label the each inequality
3. Label the intersection of shading “S” (if there is no overlap—no solution)
4. Choose a point in the shaded region to check both equations

1. On the set of axes below, solve the following system of inequalities graphically. State and check coordinates of a point that is in the solution set.

$$x - y < 0$$

$$3y \geq x + 15$$

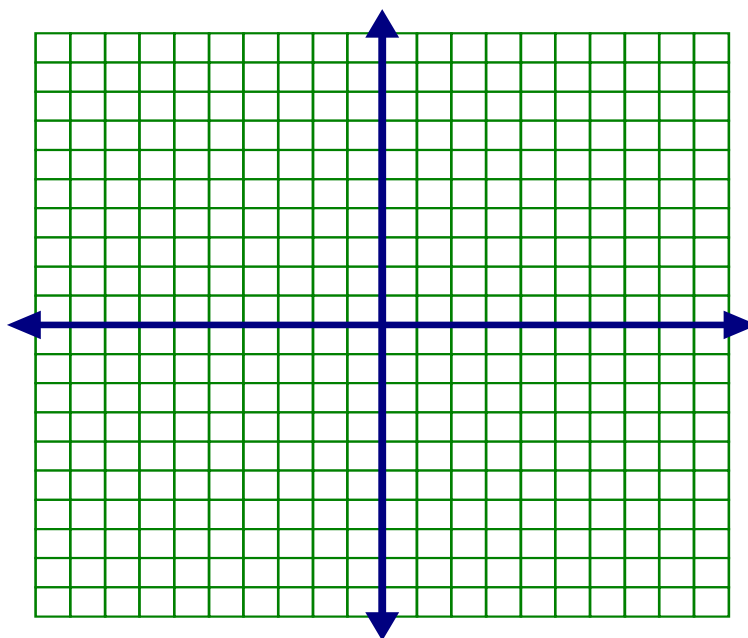


2. On the set of axes below, solve the following system of inequalities graphically.

$$y < 3$$

$$x \geq -3$$

- a) State coordinates of a point that is NOT in the solution set.



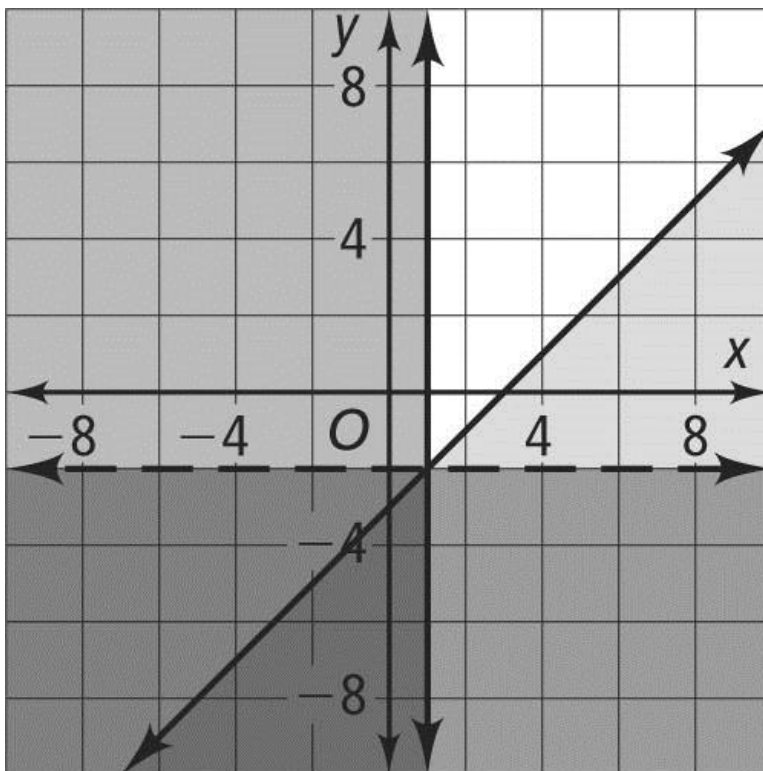
- b) Is $(-3, 2)$ a solution?
c) Is $(-3, 3)$ a solution?
d) Is $(-5, 0)$ a solution?

3. Error Analysis: A student graphs the system below. Describe and correct the student's error. Then label the "new" solution set.

$$y < -2$$

$$x \geq 1$$

$$x - y \geq 3$$



4. Writing: What is the difference between the solution of a system of linear inequalities and the solution of a system of linear equations? Explain.

5. Which point is a solution to the system below?

$$2y < -12x + 4$$

$$y < -6x + 4$$

1) $\left(1, \frac{1}{2}\right)$

2) $(0, 6)$

3) $\left(-\frac{1}{2}, 5\right)$

4) $(-3, 2)$