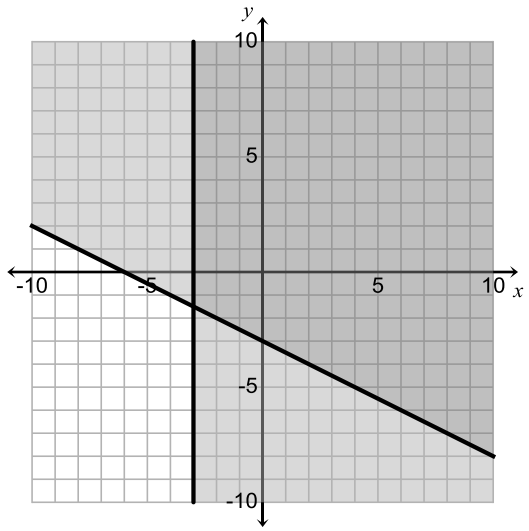
Unit 7 Objective 3 Remediation

Determining if a Point is a Solution to a System of Linear Inequalities

Example 1

Is the point **located in the overlap** of the shading?

- If yes, then the point is a solution.
- If no, then the point is not a solution.



Is the point $(1, -1)$ a solution?

YES, it is located in the overlap.

Is the point $(-3, -5)$ a solution?

NO, it is not located in the overlap.

Example 2

Does the point **make both inequalities true** when we plug in the x and y values?

- If yes, then the point is a solution.
- If no, then the point is not a solution.

Is the point $(3, -1)$ a solution of the system

$$\begin{cases} y > -2x - 1 \\ x - 3y \leq 4 \end{cases} ?$$

Plug in the values for x and y and see if you get a true statement. Do this for **both** inequalities.

$$-1 > -2(3) - 1$$
$$-1 > -7$$
True

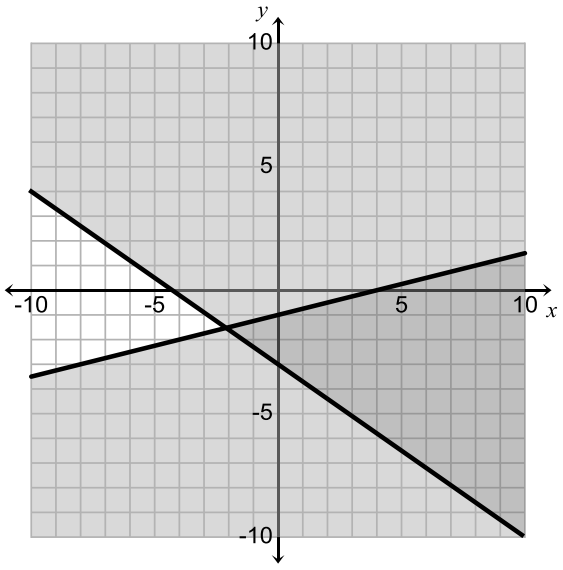
$$3 - 3(-1) \leq 4$$
$$6 \leq 4$$
False

The point $(3, -1)$ is NOT a solution because it does not make both inequalities true.

Try These

State whether or not the following points are solutions of the system of inequalities shown.

1. $(0, 0)$ _____
2. $(0, -2)$ _____
3. $(3, -3)$ _____
4. $(-2, 2)$ _____
5. $(4, 0)$ _____
6. $(-8, -3)$ _____
7. $(-3, 2)$ _____
8. $(5, -6)$ _____



Try These

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

9. Is the point $(3, 15)$ a solution to the system $\begin{cases} y > 3x + 2 \\ y < 4x - 3 \end{cases}$ 9. _____

10. Is the point $(1, -2)$ a solution to the system $\begin{cases} x > 2y - 3 \\ y \leq -x + 6 \end{cases}$ 10. _____

11. Is the point $(-3, -5)$ a solution to the system $\begin{cases} 3y - 2x > 5 \\ 4x + y \geq 9 \end{cases}$ 11. _____

12. Is the point $(1, 3)$ a solution to the system $\begin{cases} 2x - 7y < 5 \\ 11 > 3y + x \end{cases}$ 12. _____

13. Is the point $(-4, -3)$ a solution to the system $\begin{cases} y \leq \frac{3}{2}x + 3 \\ x + y < 1 \end{cases}$ 13. _____

14. Is the point $(-6, 8)$ a solution to the system $\begin{cases} y \geq \frac{3}{2}x - 2 \\ 5x + 3y > -6 \end{cases}$ 14. _____