

Solutions to Linear Inequalities

Follow the directions with each specific question.

Given the linear inequality, determine if the point is a solution. Respond by stating if the point is a solution and how your answer was determined.

1. $2x - 3y \leq 7$ Point: (5, -4)

$$\begin{aligned} 2(5) - 3(-4) &\leq 7 \\ 10 + 12 &\leq 7 \\ 22 &\leq 7 \end{aligned}$$

not a solution

2. $-x - y > 5$ Point: (-2, -4)

$$\begin{aligned} -(-2) - (-4) &> 5 \\ 2 + 4 &> 5 \\ 6 &> 5 \end{aligned}$$

is a solution

3. $5x + 4y \geq 8$ Point: (-2, 6)

$$\begin{aligned} 5(-2) + 4(6) &\geq 8 \\ -10 + 24 &\geq 8 \\ 14 &\geq 8 \end{aligned}$$

is a solution

4. $-7x + 8y < 12$ Point: (-3, 2)

$$\begin{aligned} -7(-3) + 8(2) &< 12 \\ 21 + 16 &< 12 \\ 38 &< 12 \end{aligned}$$

not a solution