

1. Is $(1, -4)$ a solution of the inequality $-2x + y > -4$?
 $x \quad y$
 $-2(1) + (-4) > -4$
 $-2 - 4 > -4$
 $-6 > -4$ X

NO!

$2x - 5y = 10$
 $2(0) - 5y = 10 \quad 2x - 5(0) = 10$
 $\frac{-5y}{-5} = \frac{10}{-5} \quad \frac{2x}{2} = \frac{10}{2}$
 $y = -2 \quad x = 5$
 int int

Sketch the graph of each linear inequality.

Graphs on Second Page

2. $y \leq \frac{-1}{3}x + 1$ Solid
 $(0, 0)$

$0 \leq \frac{-1}{3}(0) + 1$

$0 \leq 1$ ✓

Shade containing $(0, 0)$

3. $x > 3$ Dashed
 $(0, 0)$

$0 > 3$ X

Shade away from $(0, 0)$

4. $2x - 5y \leq 10$ Solid
 $(0, 0)$

$2(0) - 5(0) \leq 10$

$0 - 0 \leq 10$

$0 \leq 10$ ✓

Shade containing $(0, 0)$

5. Tell whether the ordered pair is a solution to the given system.

$(1, 3)$; $-x + y \leq 2$ $-1 + 3 \leq 2$ $-1 + 3 \leq 2$ $2 \leq 2$ ✓
 $x \quad y$

$-4x > -y - 1$ $-4(1) > -3 - 1$ $-4 > -3 - 1$ $-4 > -4$ X

NO, it does not work for both.

Solve each system of inequalities by graphing. Graphs on second page

6. $\frac{-x}{+x} + 2y \leq 4$ Solid

$y < \frac{-2x}{1} - 3$ Dashed

$\frac{2y}{2} = \frac{-x}{2} + \frac{4}{2}$

$y = \frac{-1}{2}x + 2$

$(0, 0) - (0) + 2(0) \leq 4$

$0 \leq 4$ ✓

$0 < -2(0) - 3$

$0 < -3$ X

7. $5x + 2y \leq -4$ Solid

$\frac{2y}{2} < \frac{-x}{2} + \frac{4}{2}$ Dashed

$y < \frac{-1}{2}x + 2$

$5(0) + 2y = -4$ $5x + 2(0) = -4$

$\frac{2y}{2} = \frac{-4}{2}$

$\frac{5x}{5} = \frac{-4}{5}$

$y = -2$

$x = -0.8$

$(0, 0) 5(0) + 2(0) \leq -4$ $0 \leq -4$ X

$2(0) < - (0) + 4$ $0 < 4$ ✓

8. $3x + 2y \geq -2$ Solid

$x + 2y \leq 2$ Solid

$\frac{2y}{2} = \frac{-x}{2} + \frac{2}{2}$

$y = \frac{-1}{2}x + 1$

$3x + 2y = -2$

$\frac{2y}{2} = \frac{-3x}{2} - \frac{2}{2}$

$y = \frac{-3}{2}x - 1$

$(0, 0) 3(0) + 2(0) \geq -2$

$0 \geq -2$ ✓

$0 + 2(0) \leq 2$

$0 \leq 2$ ✓

9. Write a system of inequalities for the graph below.

$y = mx + b$

$y = \frac{-5}{1}x + 2$ Dashed

$y = \frac{-1}{1}x - 2$ Dashed

Guess: $y < -5x + 2$

Guess: $y < -x - 2$

$(0, 0) 0 < -5(0) + 2$

$(0, 0) 0 < -(0) - 2$

$0 < 2$ ✓

$0 < -2$ X

Flip inequality in guess

$y < -5x + 2$

$y > -x - 2$



