

3.2 Systems of Inequalities

Algebra 1

Name: Solutions

Practice

Circle all the ordered pairs (x, y) that are solutions to the given inequality.

1. $4x + 5y < 0$

$(0, 0)$ $(1, -1)$ $(2, 0)$ $(0, -2)$ $(-2, 0)$

2. $4x - y \geq 4$

$(0, 0)$ $(6, 1)$ $(1, 0)$ $(-4, -4)$ $(0, -5)$

3. $3x + 4y \geq 8$

$(0, 0)$ $(0, 2)$ $(3, 0)$ $(2, 2)$ $(-2, -2)$

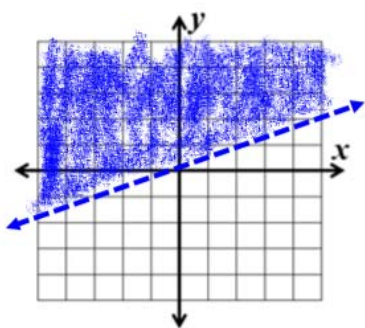
4. $x - y < 4$

$(0, 0)$ $(2, -10)$ $(3, -1)$ $(4, 0)$ $(-5, 1)$

Graph the following inequalities.

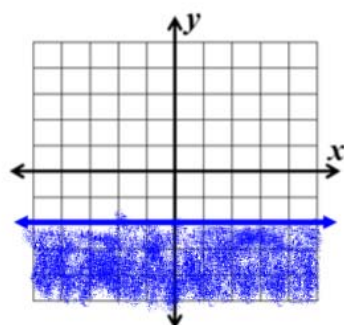
5. $y > \frac{1}{3}x$

$b = 0$
 $m = \frac{1}{3}$



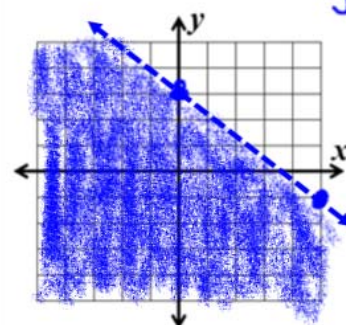
6. $y \leq -2$

$b = 0$
 $m = 0$

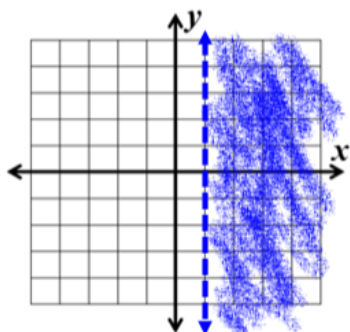


7. $4x + 5y < 15$

$\frac{x}{5} \quad \frac{y}{3} = 1$

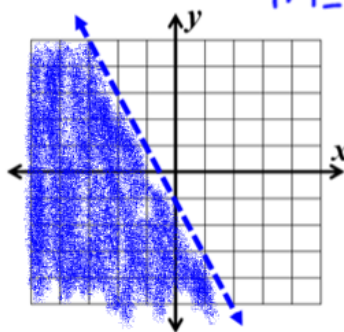


8. $x > 1$



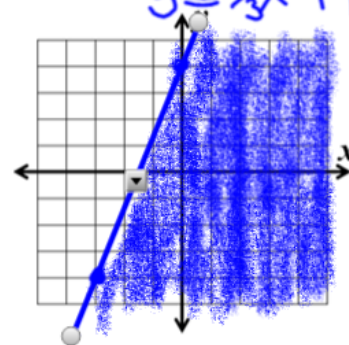
9. $y < -2x - 1$

$b = -1$
 $m = -2$



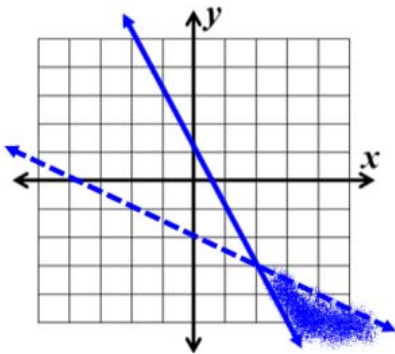
10. $8x - 3y \geq -12$

$-3y \geq -8x - 12$
 $y \leq \frac{8}{3}x + 4$

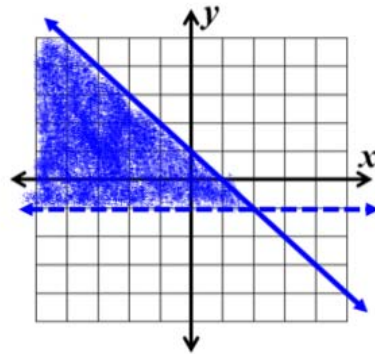


Graph the following systems of inequalities.

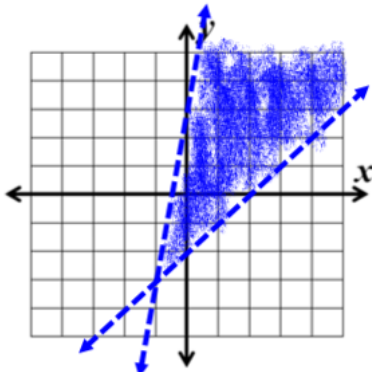
11.
$$\begin{cases} y < -\frac{1}{2}x - 2 \\ y \geq -2x + 1 \end{cases}$$



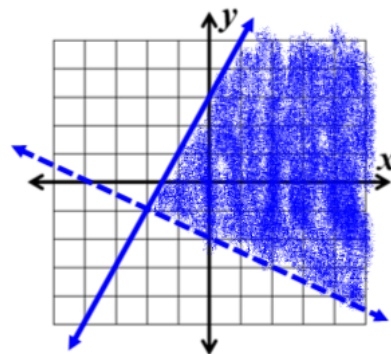
12.
$$\begin{cases} y \leq -x + 1 \\ y > -1 \end{cases}$$



13.
$$\begin{cases} 6x - y > -3 \\ x - y < 2 \end{cases} \rightarrow \begin{cases} y < 6x + 3 \\ y > x - 2 \end{cases}$$



14.
$$\begin{cases} x + 2y > -4 \\ 2x - y \geq -3 \end{cases} \rightarrow \begin{cases} y > -\frac{1}{2}x - 2 \\ y \leq 2x + 3 \end{cases}$$



15. Solve the equation. Make sure you state any excluded value(s). $\frac{5}{n+2} = \frac{4}{10} \cdot 10$

$$\begin{aligned} (n+2) \cdot \frac{50}{n+2} &= 4 \cdot (n+2) \\ 50 &= 4n + 8 \\ 42 &= 4n \\ \frac{21}{2} &= n \end{aligned} \quad n \neq -2$$

16. Solve the inequality and express the solution graphically. $-2(-6 + x) < 32$

$$\begin{aligned} 12 - 2x &< 32 \\ -2x &< 20 \\ x &> -10 \end{aligned}$$

