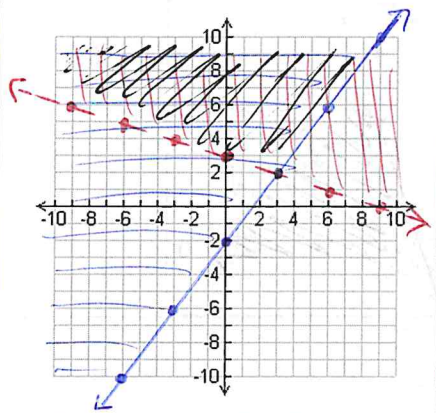


Graphing Systems of Linear Inequalities

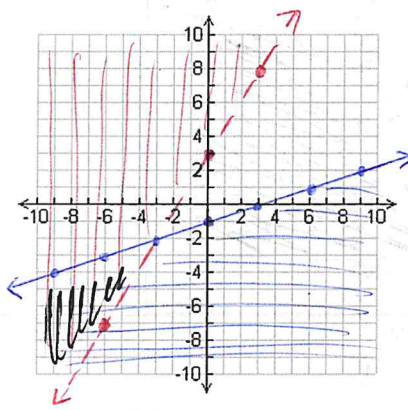
Unit 4: Systems

Sketch the solution to each system of INEQUALITIES:

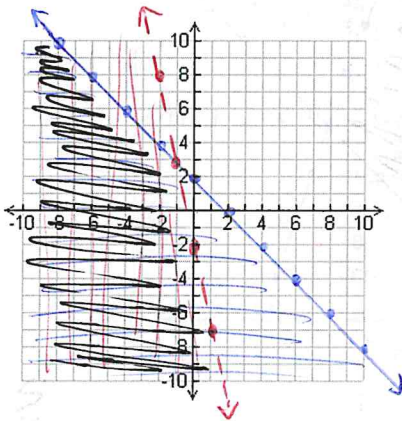
1. $4x - 3y \leq 6$
 $x + 3y > 9$



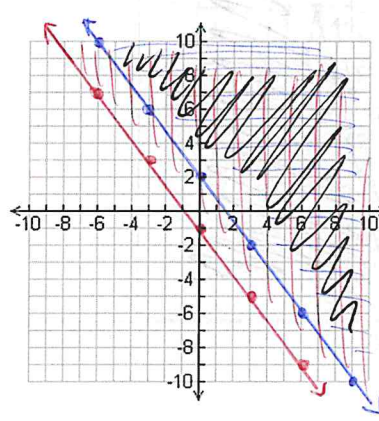
2. $x - 3y \geq 3$
 $5x - 3y < -9$



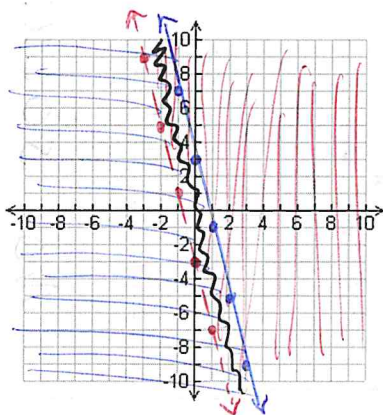
3. $x + y \leq 2$
 $5x + y < -2$



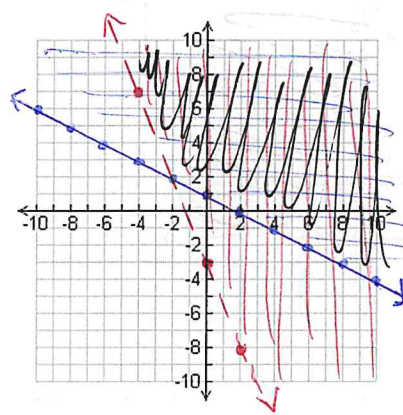
4. $4x + 3y \geq 6$
 $4x + 3y \geq -3$



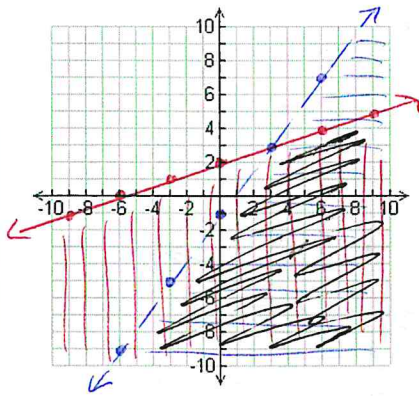
5. $4x + y \leq 3$
 $4x + y > -3$



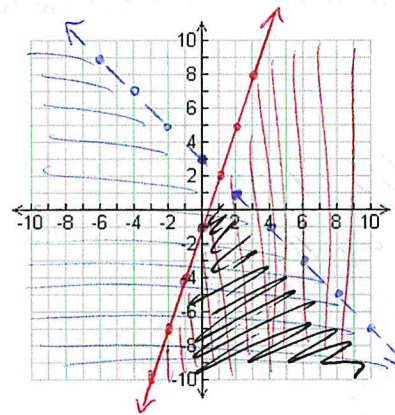
6. $x + 2y \geq 2$
 $5x + 2y > -6$



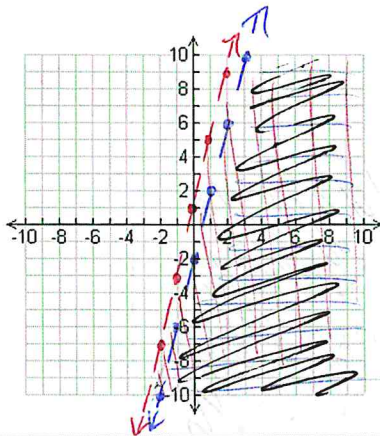
$$7. \begin{cases} 4x - 3y > 3 \\ x - 3y \geq -6 \end{cases}$$



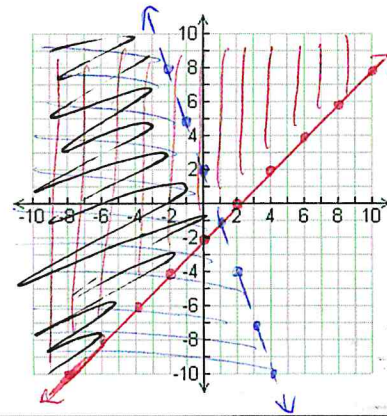
$$8. \begin{cases} x + y < 3 \\ 3x - y \geq 1 \end{cases}$$



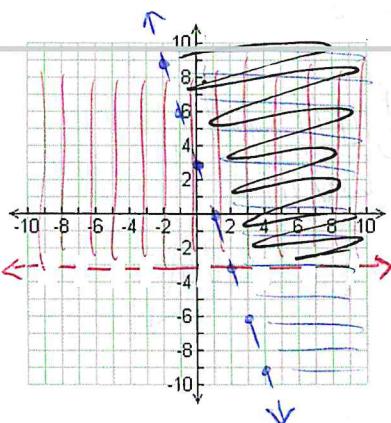
$$9. \begin{cases} 4x - y > 2 \\ 4x - y > -1 \end{cases}$$



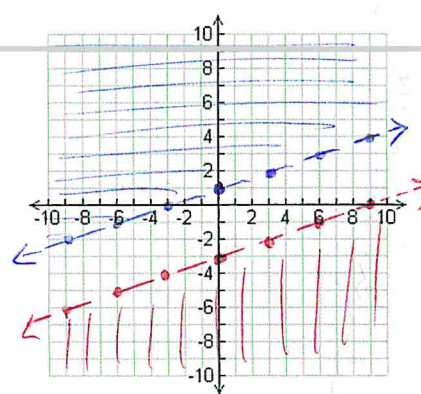
$$10. \begin{cases} 3x + y < 2 \\ x - y \leq 2 \end{cases}$$



$$11. \begin{cases} y > -3x + 3 \\ y > -3 \end{cases}$$



$$12. \begin{cases} y > \frac{1}{3}x + 1 \\ y < \frac{1}{3}x - 3 \end{cases}$$



NO SOLUTION

Top Inequalities

$$\textcircled{1} \quad \begin{array}{r} 4x - 3y \leq 6 \\ \underline{-4x} \quad \quad \quad \underline{-4x} \end{array}$$

$$\frac{-3y}{-3} \leq \frac{-4x+6}{-3} \quad \frac{-4x}{-3}$$

$$y \geq \frac{4}{3}x - 2$$

$$\textcircled{2} \quad \begin{array}{r} x - 3y \geq 3 \\ \underline{-x} \quad \quad \quad \underline{-x} \end{array}$$

$$\frac{-3y}{-3} \geq \frac{-x+3}{-3} \quad \frac{-x}{-3}$$

$$y \leq \frac{1}{3}x - 1$$

$$\textcircled{3} \quad \begin{array}{r} x + y \leq 2 \\ \underline{-x} \quad \quad \quad \underline{-x} \end{array}$$

$$y \leq -x + 2$$

$$\textcircled{4} \quad \begin{array}{r} 4x + 3y \geq 6 \\ \underline{-4x} \quad \quad \quad \underline{-4x} \end{array}$$

$$\frac{3y}{3} \geq \frac{-4x+6}{3} \quad \frac{-4x}{3}$$

$$y \geq \frac{-4}{3}x + 2$$

$$\textcircled{5} \quad \begin{array}{r} 4x + y \leq 3 \\ \underline{-4x} \quad \quad \quad \underline{-4x} \end{array}$$

$$y \leq -4x + 3$$

Bottom Inequalities

$$\begin{array}{r} x + 3y > 9 \\ \underline{-x} \quad \quad \quad \underline{-x} \end{array}$$

$$\frac{3y}{3} > \frac{-x+9}{3} \quad \frac{-x}{3}$$

$$y > \frac{-1}{3}x + 3$$

$$\begin{array}{r} 5x - 3y < -9 \\ \underline{-5x} \quad \quad \quad \underline{-5x} \end{array}$$

$$\frac{-3y}{-3} < \frac{-5x-9}{-3} \quad \frac{-5x}{-3}$$

$$y > \frac{5}{3}x + 3$$

$$\begin{array}{r} 5x + y < -2 \\ \underline{-5x} \quad \quad \quad \underline{-5x} \end{array}$$

$$y < -5x - 2$$

$$\begin{array}{r} 4x + 3y \geq -3 \\ \underline{-4x} \quad \quad \quad \underline{-4x} \end{array}$$

$$\frac{3y}{3} \geq \frac{-4x-3}{3} \quad \frac{-4x}{3}$$

$$y \geq \frac{-4}{3}x - 1$$

$$\begin{array}{r} 4x + y > -3 \\ \underline{-4x} \quad \quad \quad \underline{-4x} \end{array}$$

$$y > -4x - 3$$

Top Inequalities

$$\begin{aligned} \textcircled{6} \quad x + 2y &\geq 2 \\ \underline{-x} \quad \underline{-x} & \\ \frac{2y}{2} &\geq \frac{-x+2}{2} \\ y &\geq -\frac{1}{2}x + 1 \end{aligned}$$

$$\begin{aligned} \textcircled{7} \quad 4x - 3y &> 3 \\ \underline{-4x} \quad \underline{-4x} & \\ \frac{-3y}{-3} &> \frac{-4x+3}{-3} \\ y &< \frac{4}{3}x - 1 \end{aligned}$$

$$\begin{aligned} \textcircled{8} \quad x + y &< 3 \\ \underline{-x} \quad \underline{-x} & \\ y &< -x + 3 \end{aligned}$$

$$\begin{aligned} \textcircled{9} \quad 4x - y &> 2 \\ \underline{-4x} \quad \underline{-4x} & \\ \frac{-y}{-1} &> \frac{-4x+2}{-1} \\ y &< 4x - 2 \end{aligned}$$

$$\begin{aligned} \textcircled{10} \quad 3x + y &< 2 \\ \underline{-3x} \quad \underline{-3x} & \\ y &< -3x + 2 \end{aligned}$$

Bottom Inequalities

$$\begin{aligned} 5x + 2y &> -6 \\ \underline{-5x} \quad \underline{-5x} & \\ \frac{2y}{2} &> \frac{-5x-6}{2} \\ y &> -\frac{5}{2}x - 3 \end{aligned}$$

$$\begin{aligned} x - 3y &\geq -6 \\ \underline{-x} \quad \underline{-x} & \\ \frac{-3y}{-3} &\geq \frac{-x-6}{-3} \\ y &\leq \frac{1}{3}x + 2 \end{aligned}$$

$$\begin{aligned} 3x - y &\geq 1 \\ \underline{-3x} \quad \underline{-3x} & \\ \frac{-y}{-1} &\geq \frac{-3x+1}{-1} \\ y &\leq 3x - 1 \end{aligned}$$

$$\begin{aligned} 4x - y &> -1 \\ \underline{-4x} \quad \underline{-4x} & \\ \frac{-y}{-1} &> \frac{-4x-1}{-1} \\ y &< 4x + 1 \end{aligned}$$

$$\begin{aligned} x - y &\leq 2 \\ \underline{-x} \quad \underline{-x} & \\ \frac{-y}{-1} &\leq \frac{-x+2}{-1} \\ y &\geq x - 2 \end{aligned}$$