

Solving Systems of Linear Inequalities



Overview of problems



Example Set: A

Decide if the ordered pair is a solution to the system of inequalities

$$\begin{cases} 2x + y \geq 10 \\ y \leq 5 \\ x > 0 \end{cases} \quad (-1, 2)$$

Find all the vertices

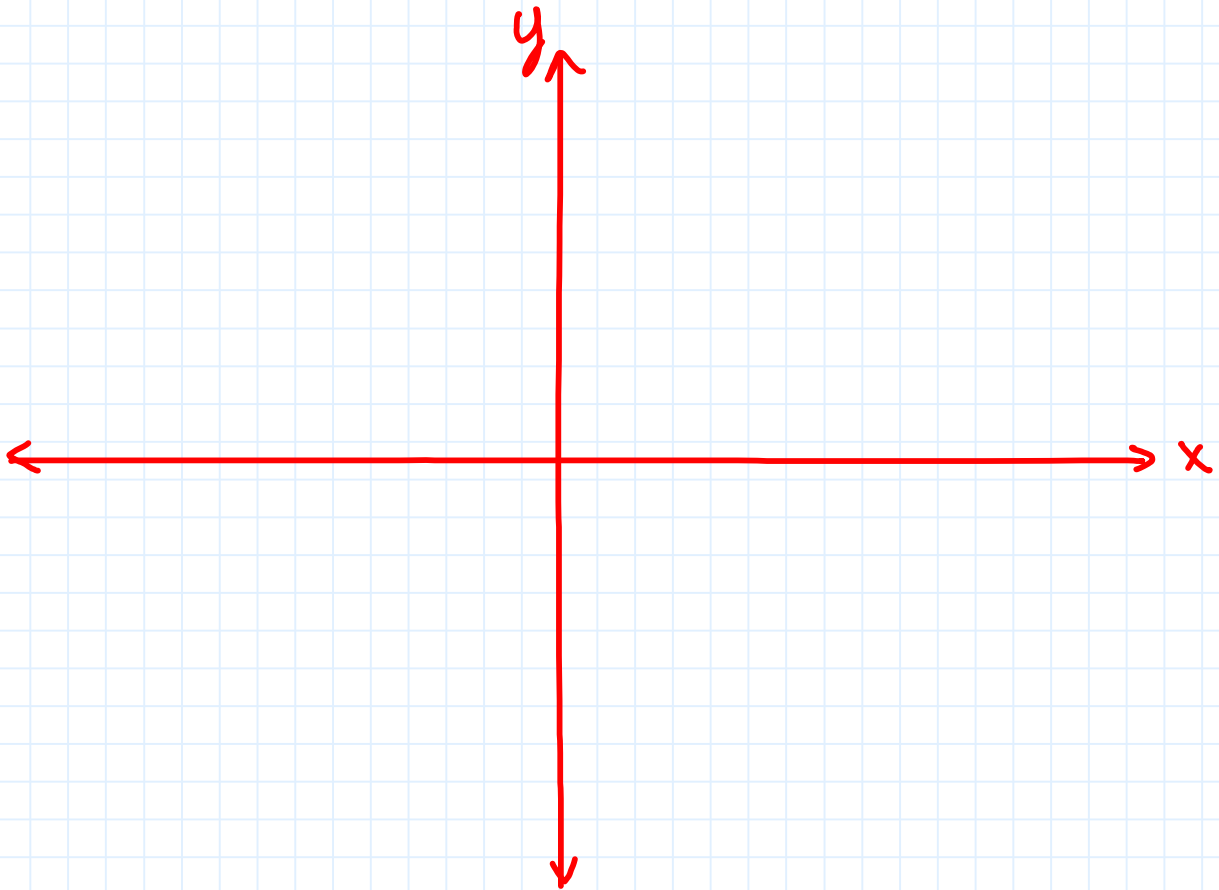
$$\begin{cases} 4x + 2y < 16 \\ -2x + 2y \leq 10 \\ y \geq -4 \end{cases}$$



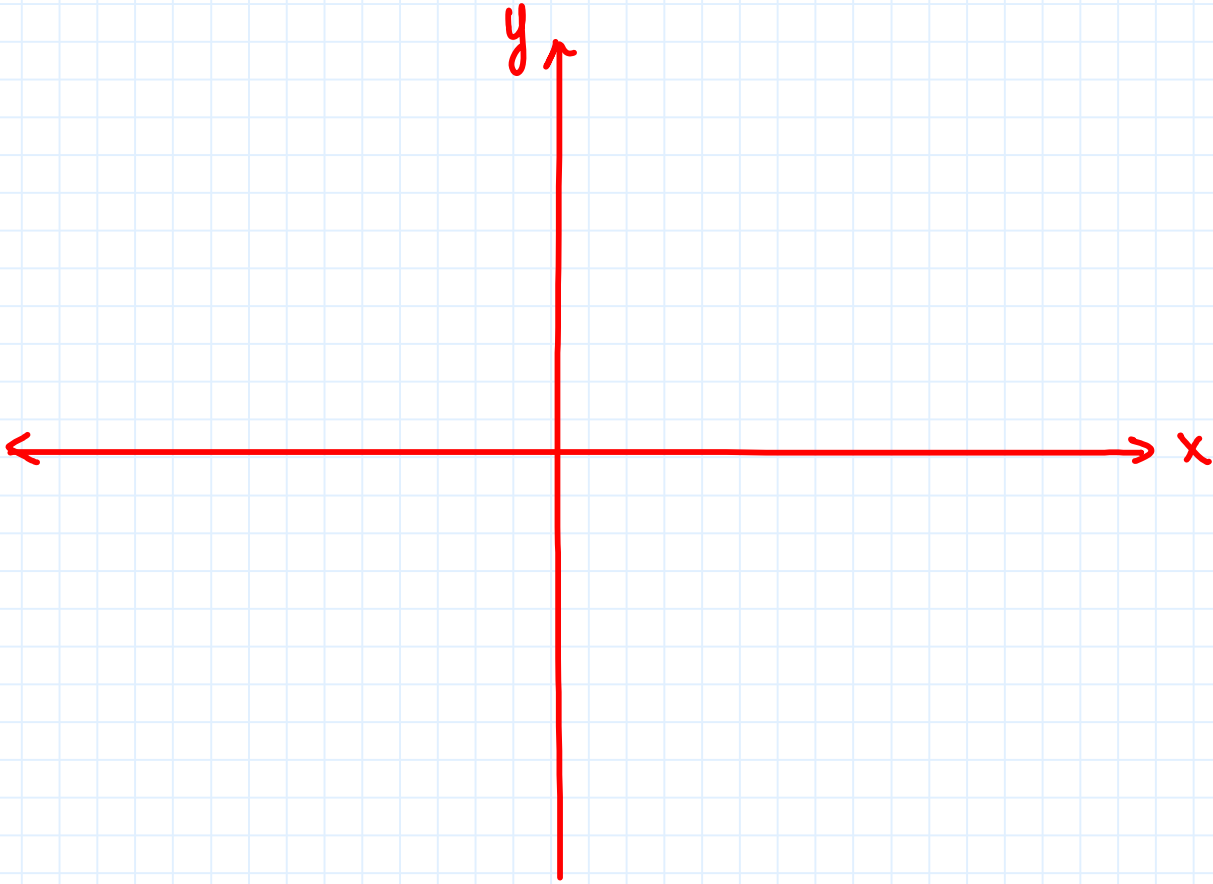
Example Set: B

Solve and graph

$$\begin{cases} x + 2y \leq 6 \\ x - y \geq 2 \\ x \geq 0 \end{cases}$$



$$\begin{cases} x + 2y \leq 4 \\ x \leq y \\ x \geq 0 \end{cases}$$

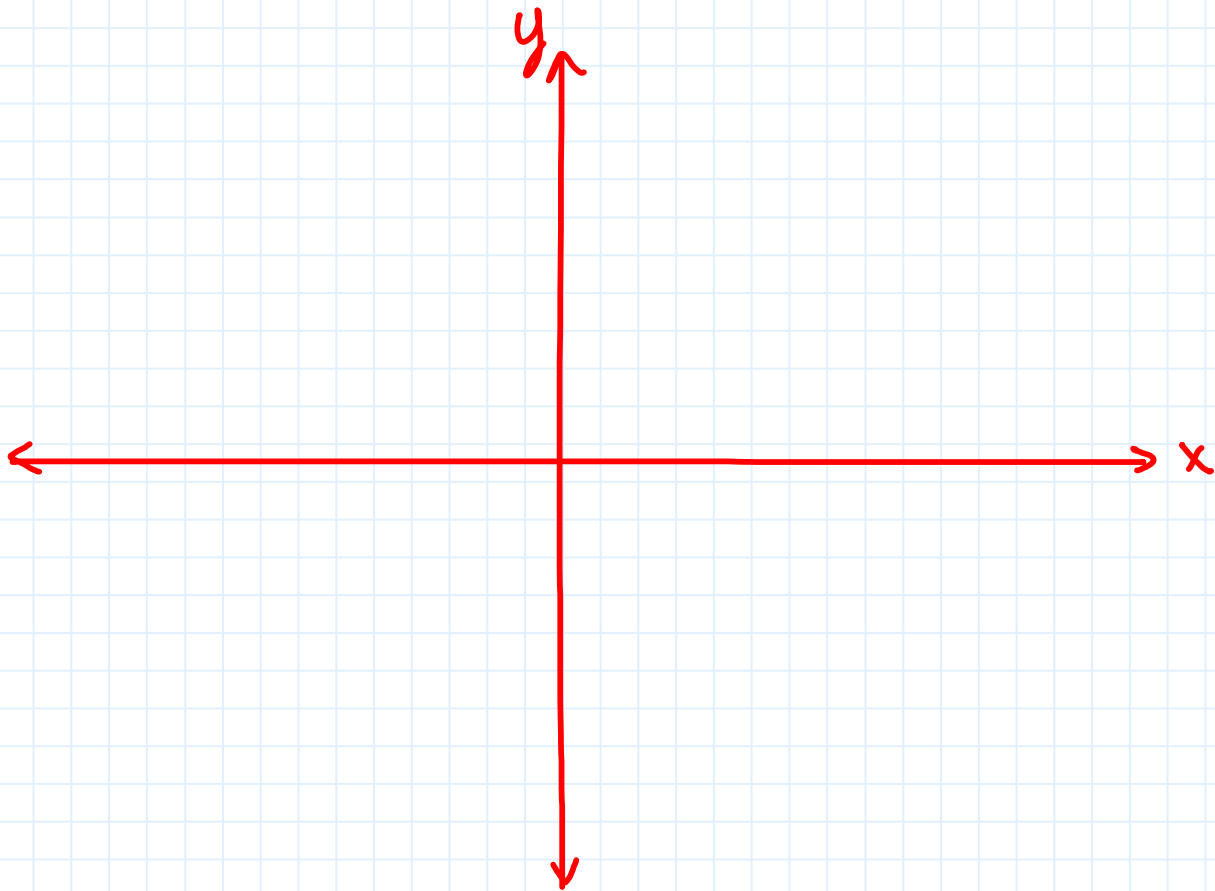




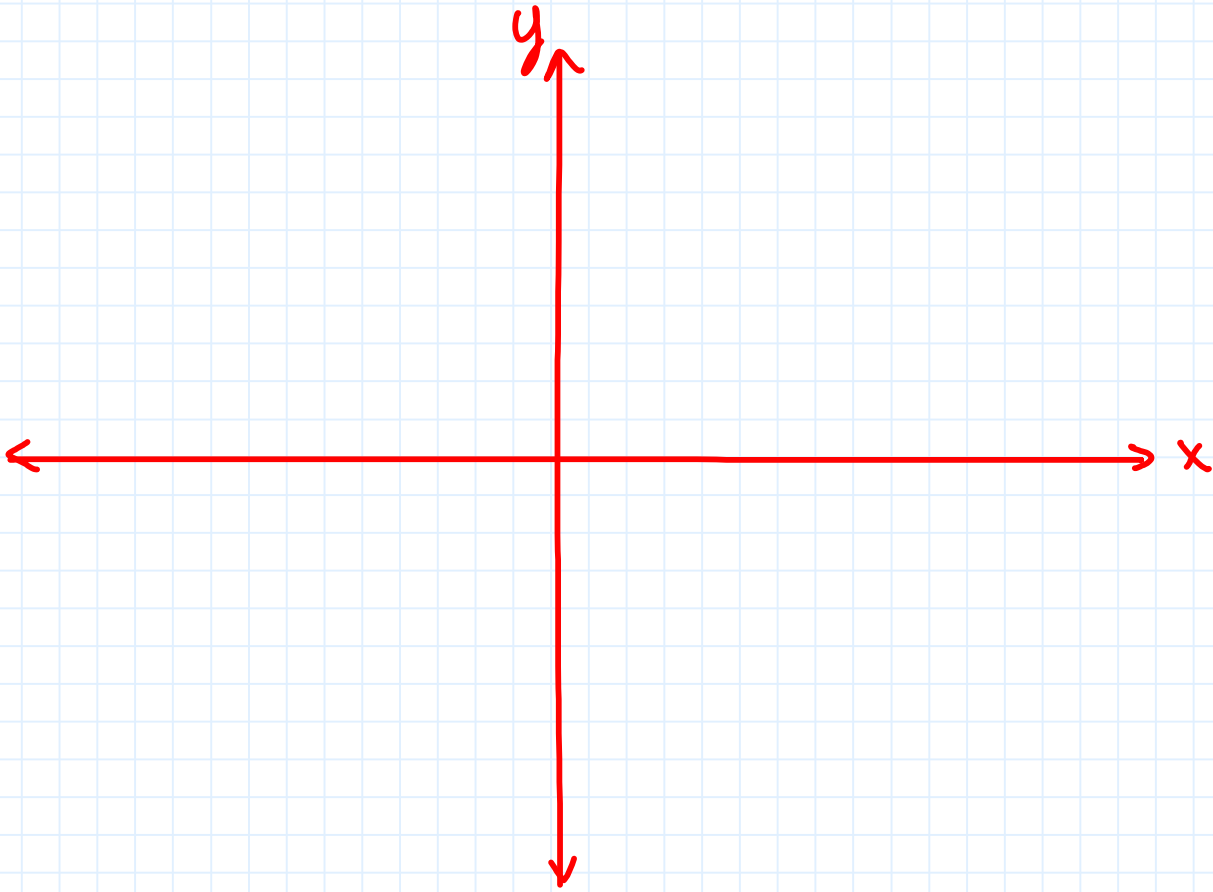
Example Set: C

Solve and graph

$$\begin{cases} x \geq 0 \\ y \geq 0 \\ y + x \leq 6 \\ y + 3x \leq 12 \end{cases}$$



$$\begin{cases} 5y - x \leq 8 \\ y + 5x \leq 12 \\ 3y + 2x \geq -3 \end{cases}$$

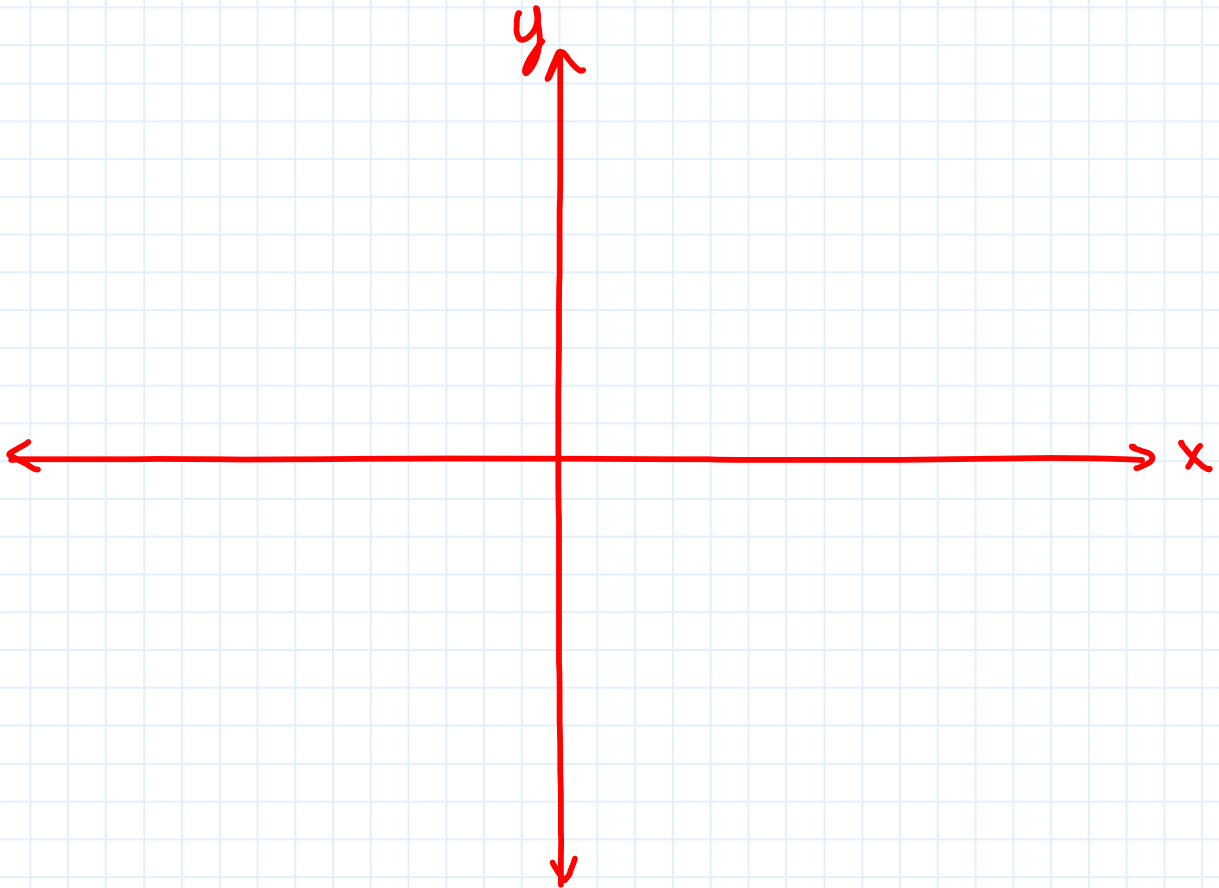




Example Set: D

Solve and graph

$$\begin{cases} -\frac{3}{2}x + y < 3 \\ \frac{1}{4}x + y > -\frac{1}{2} \\ 2x + y < 3 \end{cases}$$



Solving Systems of Linear Inequalities



Overview of problems- KEY



Example Set: A

Decide if the ordered pair is a solution to the system of inequalities

$$\begin{cases} 2x + y \geq 10 \\ y \leq 5 \\ x > 0 \end{cases}$$

$$(-1, 2)$$

not a solution

Find all the vertices

$$\begin{cases} 4x + 2y < 16 \\ -2x + 2y \leq 10 \\ y \geq -4 \end{cases}$$

$$(1, 6)$$

$$(-9, -4)$$

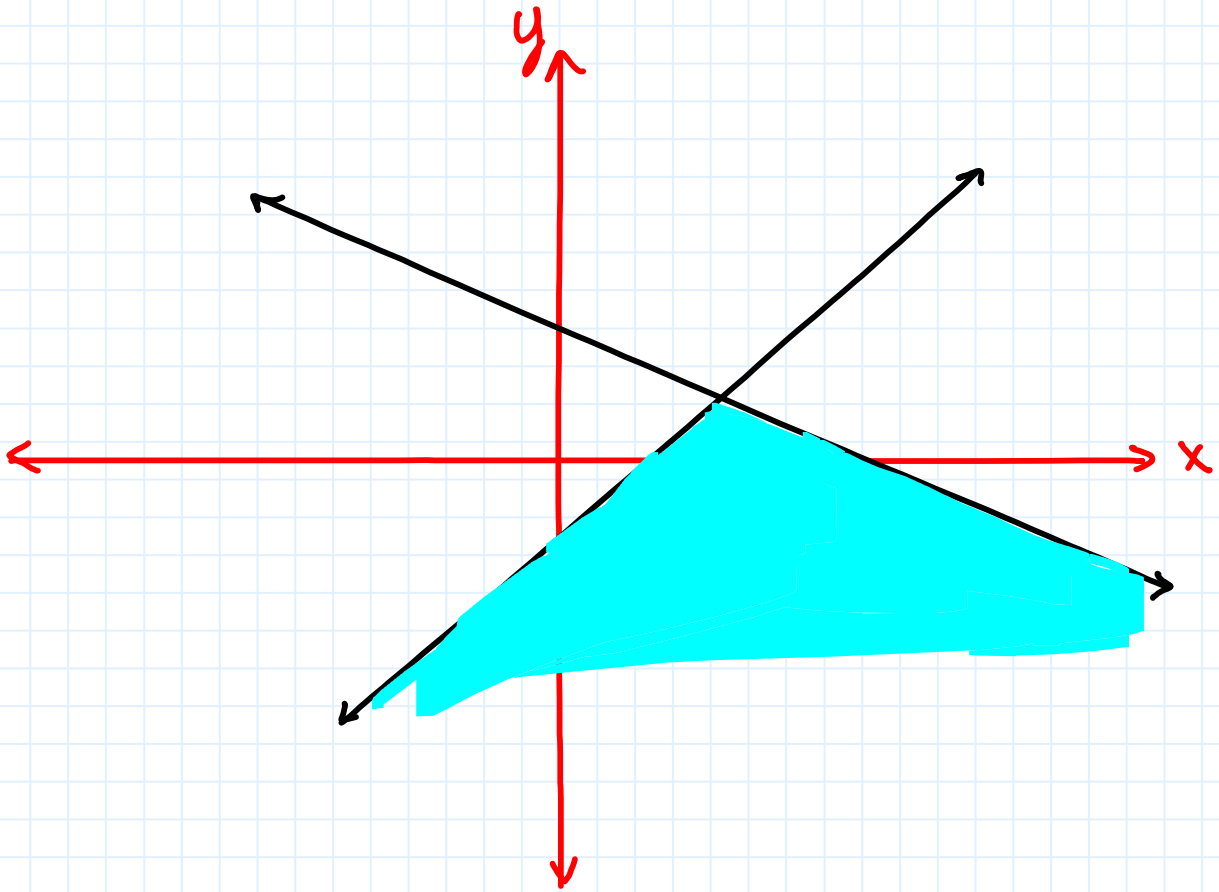
$$(6, -4)$$



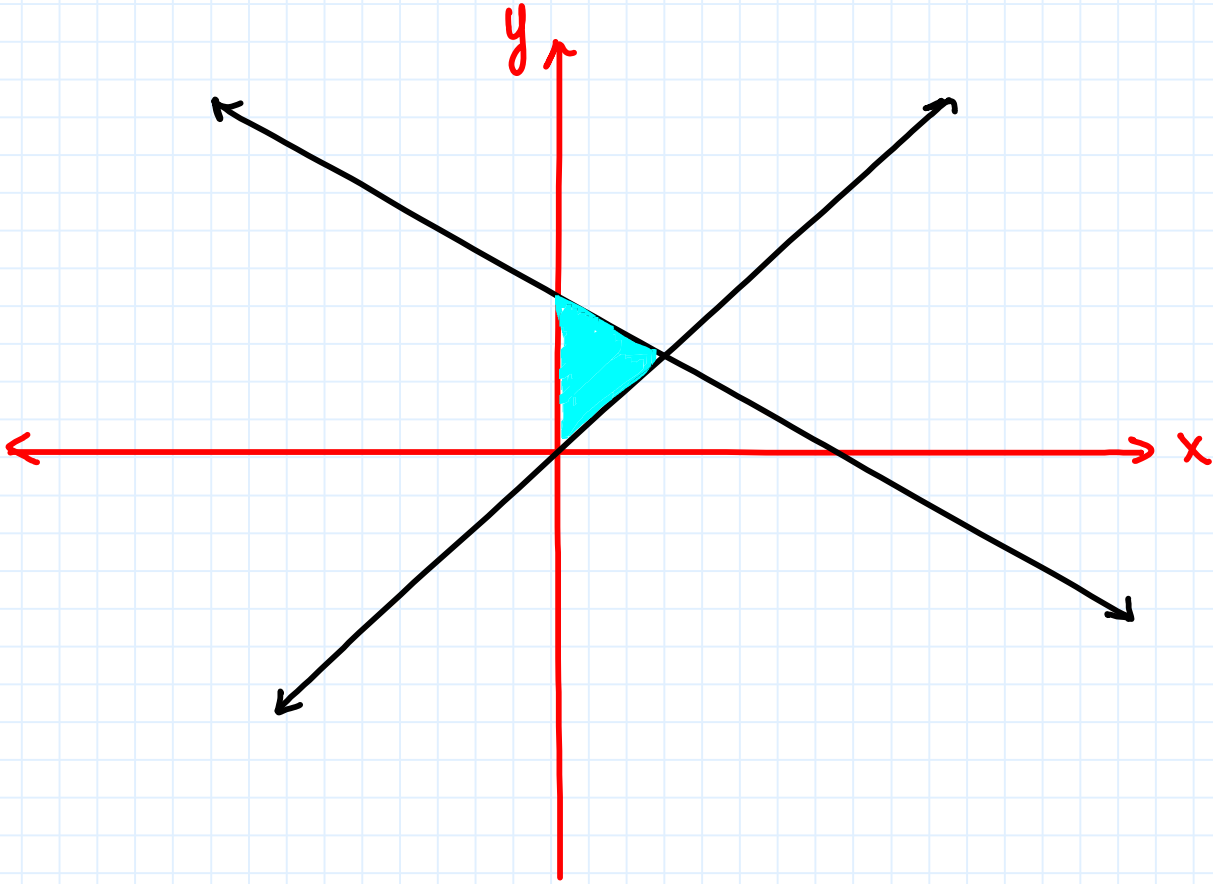
Example Set: B

Solve and graph

$$\begin{cases} x + 2y \leq 6 \\ x - y \geq 2 \\ x \geq 0 \end{cases}$$



$$\begin{cases} x + 2y \leq 4 \\ x \leq y \\ x \geq 0 \end{cases}$$

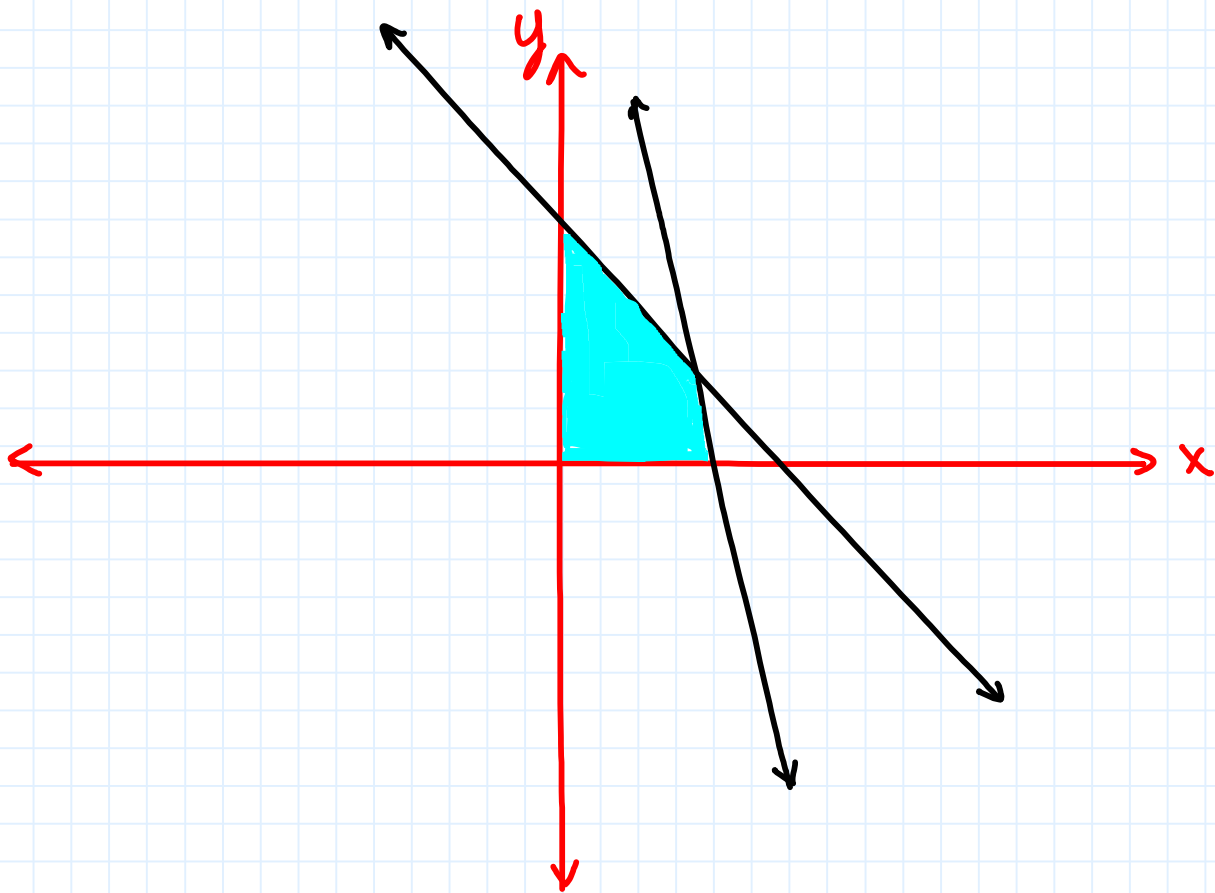




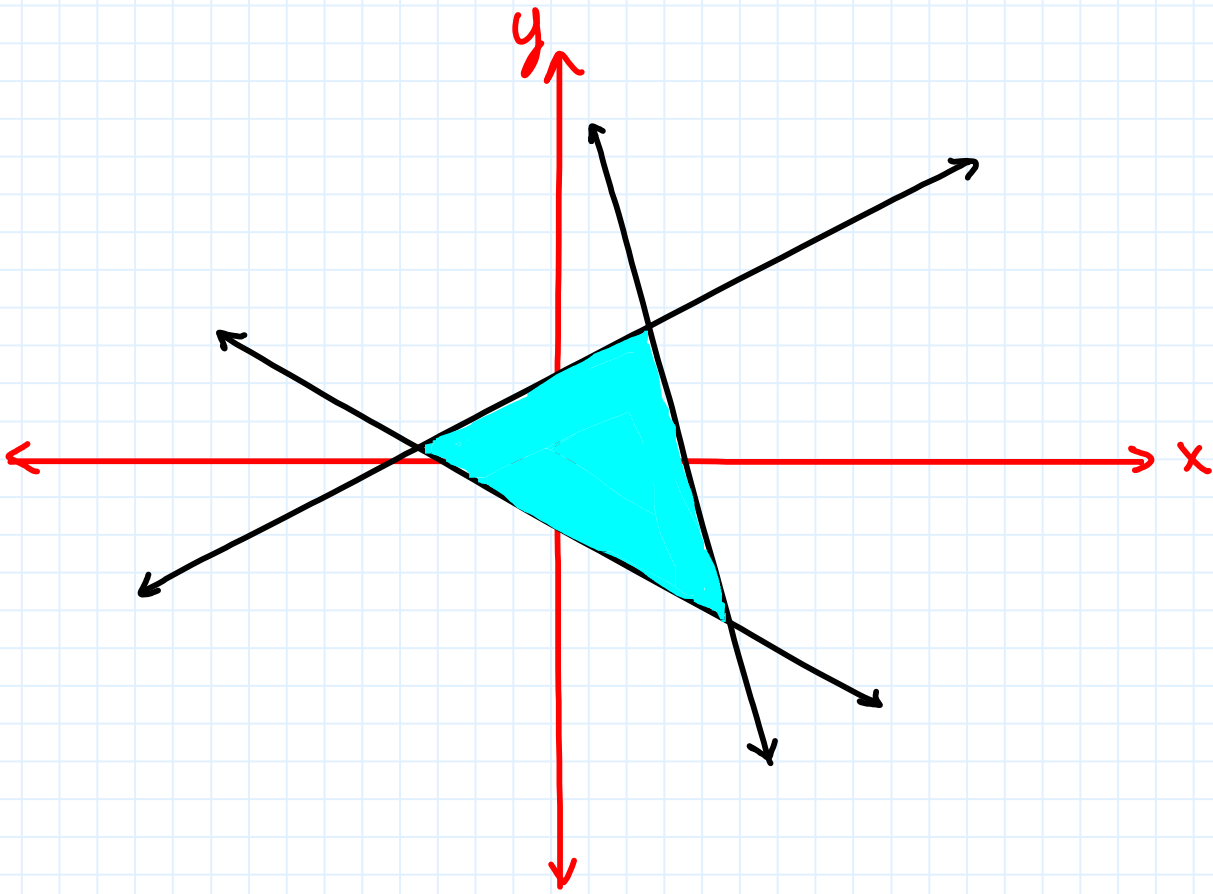
Example Set: C

Solve and graph

$$\begin{cases} x \geq 0 \\ y \geq 0 \\ y + x \leq 6 \\ y + 3x \leq 12 \end{cases}$$



$$\begin{cases} 5y - x \leq 8 \\ y + 5x \leq 12 \\ 3y + 2x \geq -3 \end{cases}$$





Example Set: D

Solve and graph

$$\begin{cases} -\frac{3}{2}x + y < 3 \\ \frac{1}{4}x + y > -\frac{1}{2} \\ 2x + y < 3 \end{cases}$$

