

### 3-3 Graphing Systems of Inequalities

Solving a single inequality gives a Region of valid solutions.

Therefore, when solving a system of inequalities, we look at the intersection of the regions of valid solutions.

$$30. \quad \begin{aligned} 3x - 2y &= -31 \\ 5x + 6y &= 23 \end{aligned}$$

$$52. \quad \begin{aligned} & \textcircled{z = 14} \\ & \textcircled{10} = -4 + z \\ x &= y + z \end{aligned}$$

$$10 + y = 6 \quad y = -4$$

$$x = 10$$

$$48 = 2(2y) + 2(4x)$$

53. Find value of  $x$

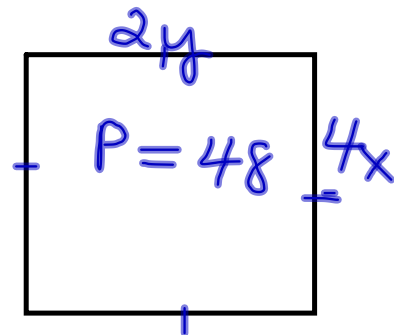
$$48 = 2y + 2y + 4x + 4x$$

$$48 = 4y + 8x$$

$$\boxed{2y = 4x}$$

$$8x + 4y = 48$$

$$4x - 2y = 0$$



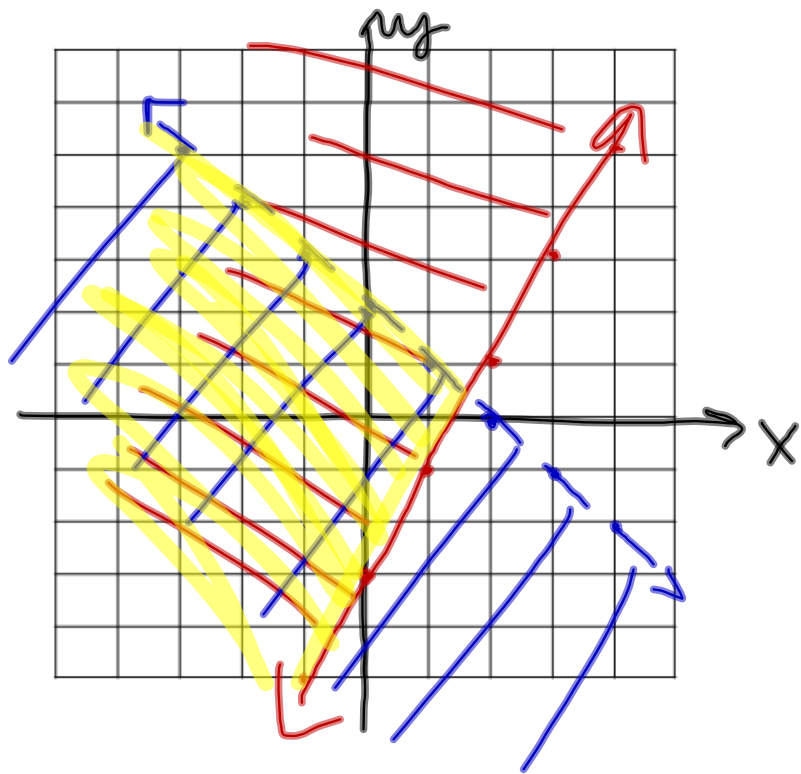
$$x = 3$$

Solve:

$$y \geq x - 3$$

$$y < x + 2$$

$$0 < 2$$



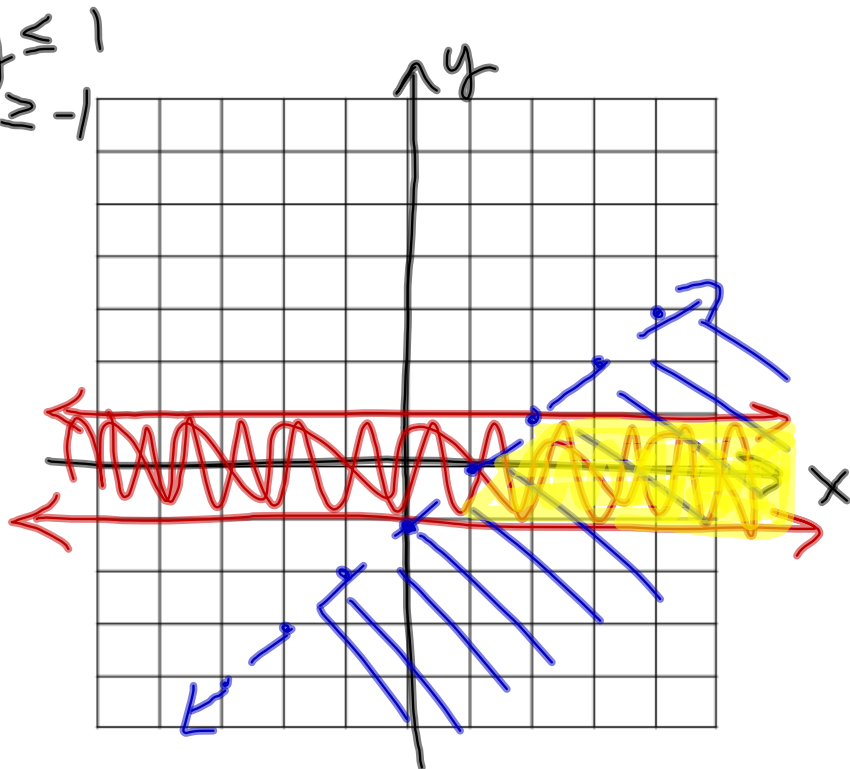
Solve:

$$|y| \leq 1$$

$$y < x - 1$$

(0,0)  
0 < -1

False



Solve:

$$3y > 4x$$

$$2x - 3y > -6$$

Find the vertices of the region bounded by

$$28 - y \geq -1$$

$$x + y \leq 4$$

$$x + 4y \geq 4$$

