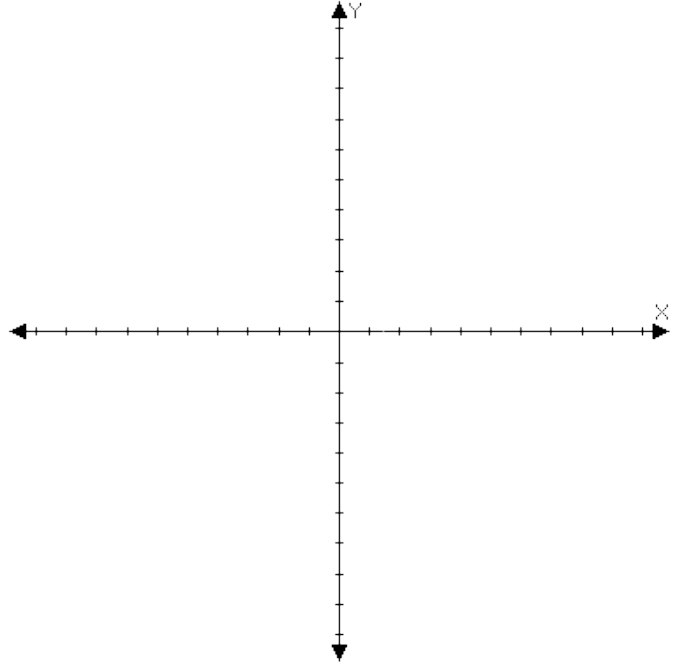


Review Exercise Set 25

Exercise 1: Graph the solution to the following system of inequalities.

$$5x \leq 2y + 10$$

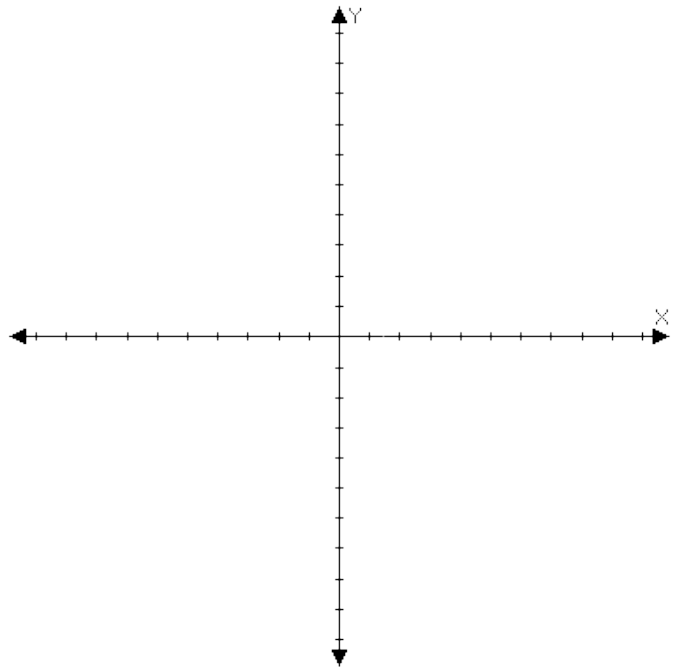
$$3x + 2y > 6$$



Exercise 2: Graph the solution to the following system of inequalities.

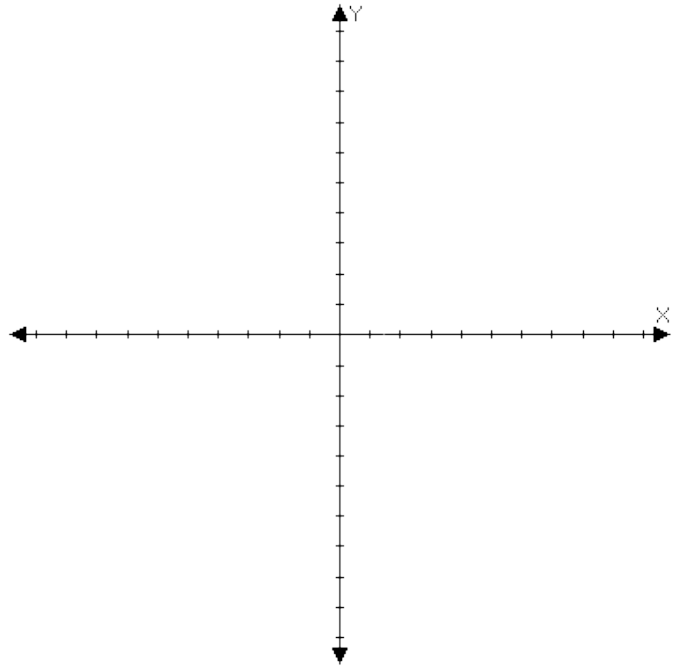
$$3x + 2y < 8$$

$$x - 5y > 5$$



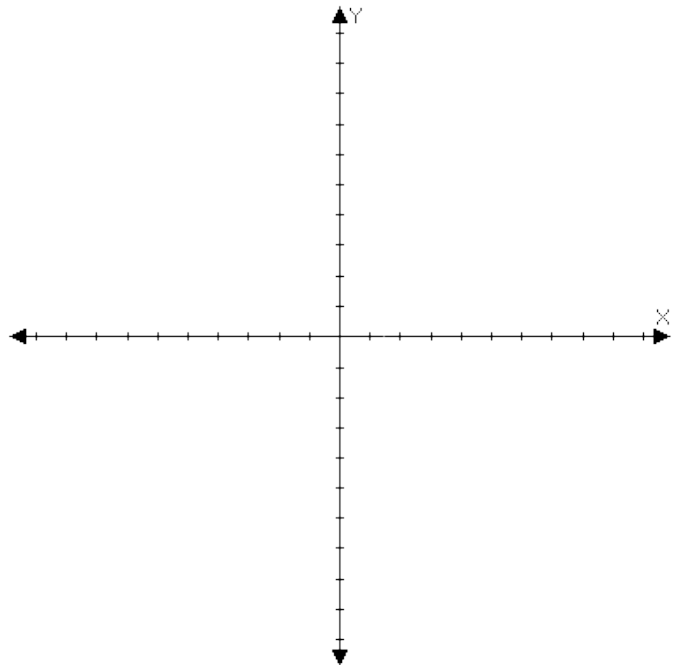
Exercise 3: Graph the solution to the following system of inequalities.

$$\begin{aligned}x &\geq 0 \\y &\geq 0 \\3x + y &\leq 6 \\4x + 5y &\leq 20\end{aligned}$$



Exercise 4: Graph the solution to the following system of inequalities.

$$\begin{aligned}x &\geq 0 \\y &\geq 0 \\3x + y &\leq 9 \\2x - 3y &\leq -6\end{aligned}$$



Review Exercise Set 25 Answer Key

Exercise 1: Graph the solution to the following system of inequalities.

$$5x \leq 2y + 10$$

$$3x + 2y > 6$$

Solve the first inequality for y

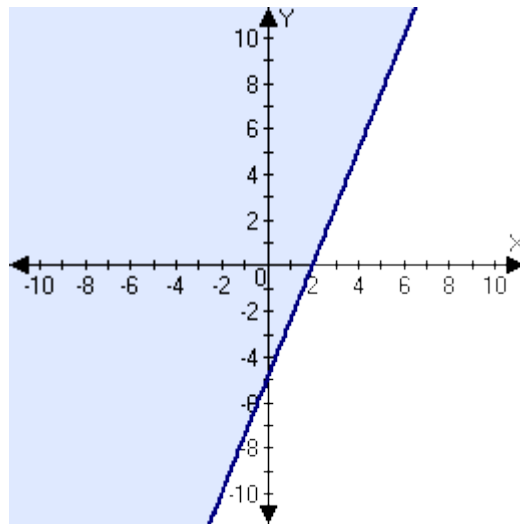
$$5x \leq 2y + 10$$

$$5x - 10 \leq 2y$$

$$\frac{5}{2}x - 5 \leq y$$

$$y \geq \frac{5}{2}x - 5$$

Graph the boundary line and shade the appropriate region



Solve the second inequality for y

$$3x + 2y > 6$$

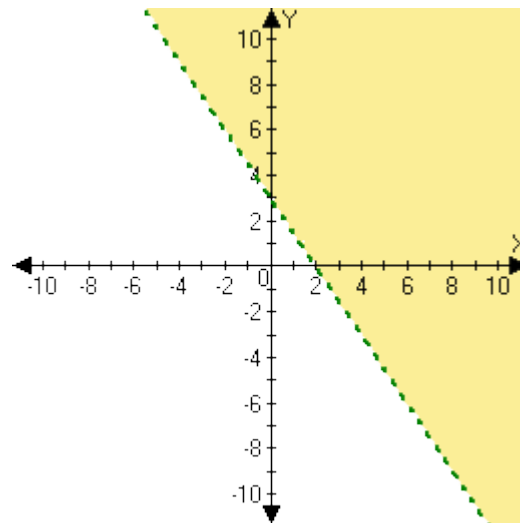
$$2y > 6 - 3x$$

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

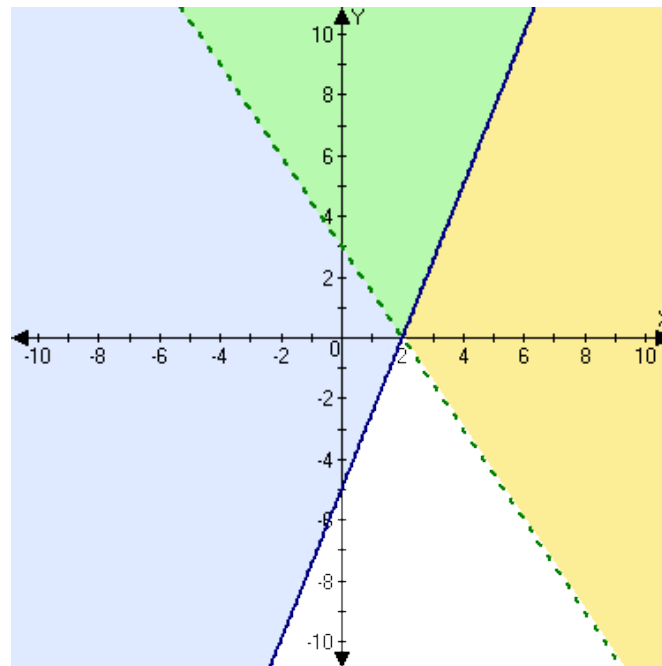
$$y > -\frac{3}{2}x + 3$$

Exercise 1 (Continued):

Graph the boundary line and shade the appropriate region



Combine the two graphs together



The solution area (shaded in green) is the area that is above and between both of the boundary lines.

Exercise 2: Graph the solution to the following system of inequalities.

$$3x + 2y < 8$$

$$x - 5y > 5$$

Solve the inequalities for y

$$3x + 2y < 8$$

$$2y < 8 - 3x$$

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

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

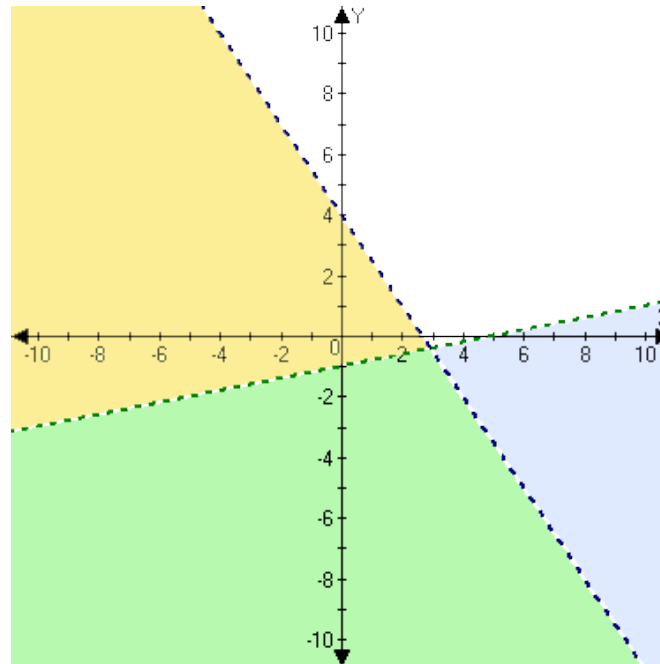
$$x - 5y > 5$$

$$-5y > 5 - x$$

$$y < -1 + \frac{1}{5}x$$

$$y < \frac{1}{5}x - 1$$

Graph both inequalities



The solution area (shaded in green) is the area that is below and between both of the boundary lines.

Exercise 3: Graph the solution to the following system of inequalities.

$$x \geq 0$$

$$y \geq 0$$

$$3x + y \leq 6$$

$$4x + 5y \leq 20$$

Solve the 3rd and 4th inequalities for y

$$3x + y \leq 6$$

$$y \leq 6 - 3x$$

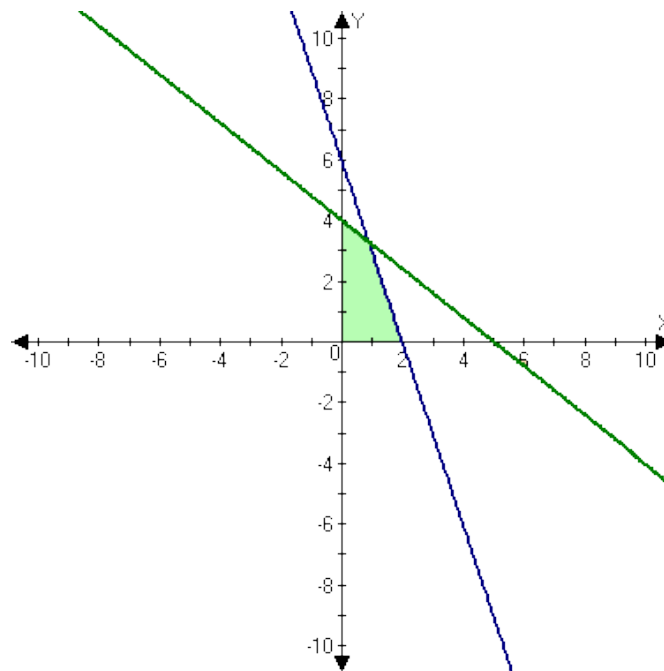
$$y \leq -3x + 6$$

$$4x + 5y \leq 20$$

$$5y \leq -4x + 20$$

$$y \leq -\frac{4}{5}x + 4$$

Graph all four inequalities



The inequality $x \geq 0$ is the area to the right the y-axis and $y \geq 0$ is the area above the x-axis, so when looking for the solution area we are only concerned about the first quadrant of the graph. The solution area (shaded in green) is the area bounded in the middle of all four boundary lines.

Exercise 4: Graph the solution to the following system of inequalities.

$$x \geq 0$$

$$y \geq 0$$

$$3x + y \leq 9$$

$$2x - 3y \leq -6$$

Solve the 3rd and 4th inequalities for y

$$3x + y \leq 9$$

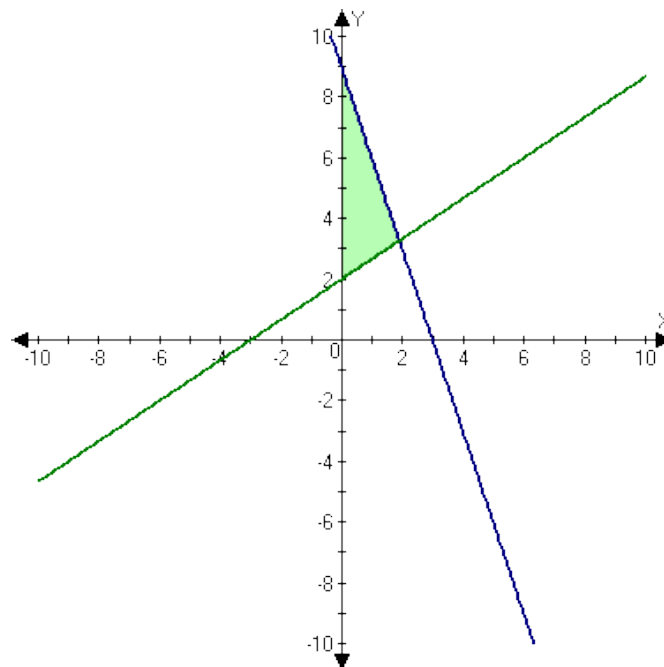
$$y \leq -3x + 9$$

$$2x - 3y \leq -6$$

$$-3y \leq -2x - 6$$

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

Graph all four inequalities



The solution area (shaded in green) is the area in the first quadrant that is bounded by the y-axis and the third and fourth inequalities.