

Solution **Section 1.2 – Graphing Linear Inequalities**

Exercise

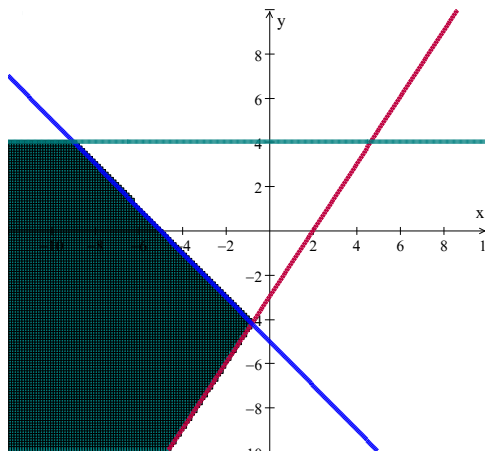
Graph the feasible region for the system

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

$$x + y \leq -5$$

$$y \leq 4$$

Solution

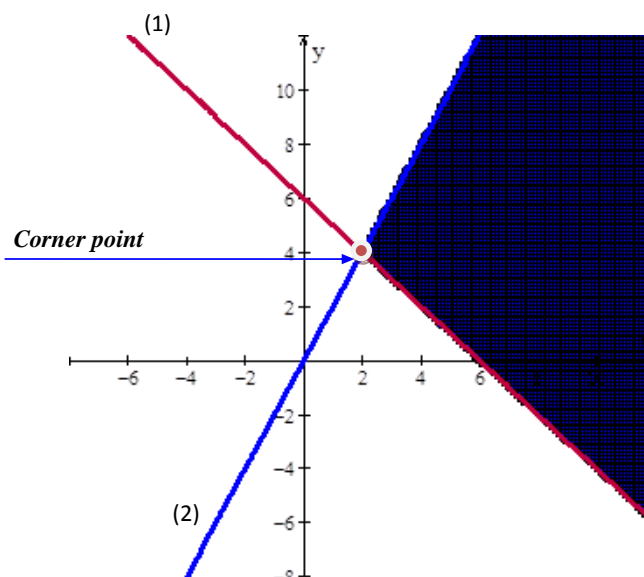


Exercise

Graph the feasible region for the system $\begin{cases} x + y \geq 6 \\ 2x - y \geq 0 \end{cases}$

Solution

$$\text{Graph: } \begin{cases} x + y = 6 & (1) \\ 2x - y = 0 & (2) \end{cases}$$



Exercise

Graph the feasible region for the system
$$\begin{cases} 3x + y \leq 21 \\ x - 2y \leq 0 \end{cases}$$

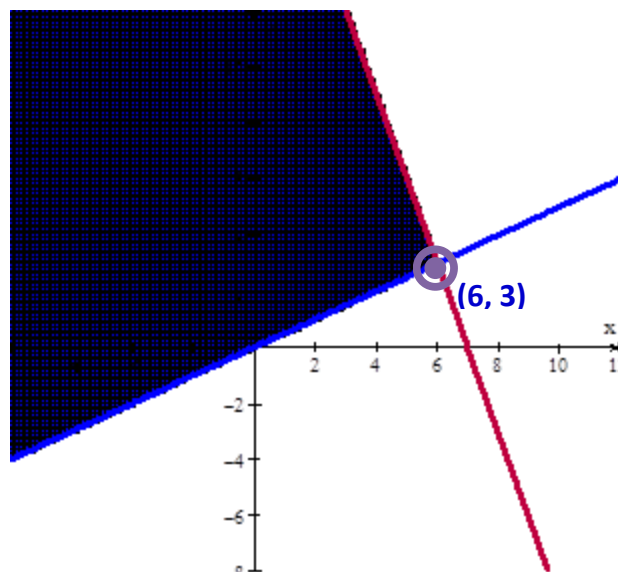
Solution

$$\text{Graph: } \begin{cases} 3x + y = 21 & (1) \\ x - 2y = 0 & (2) \end{cases}$$

x	(1)
0	21
7	0

x	(2)
0	0
2	1

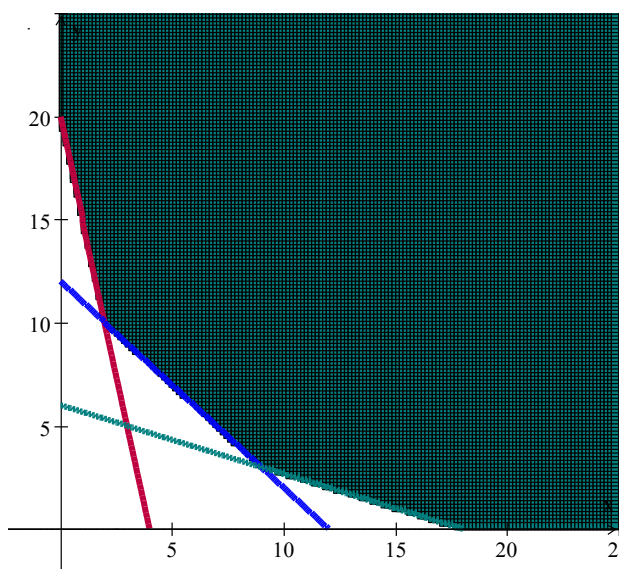
Corner Point (6, 3)



Exercise

Graph the feasible region for the system
$$\begin{cases} 5x + y \geq 20 \\ x + y \geq 12 \\ x + 3y \geq 18 \\ x \geq 0 \\ y \geq 0 \end{cases}$$

Solution



Exercise

A manufacturing plant makes two types of inflatable boats, a two-person boat and a four-person boat. Each two-person boat requires 0.9 labor-hour in the cutting department and 0.8 labor-hour in the assembly department. Each four-person boat requires 1.8 labor-hours in the cutting department and 1.2 labor-hours in the assembly department. The maximum labor-hours available each month in the cutting and assembly departments are 864 and 672, respectively.

- Summarize the information in a table
- If x two-person boat and y four-person boats are manufactured each month, write a system of linear inequalities that reflect the conditions indicated. Find the set of feasible solutions graphically

Solution

a)

	two-person	four-person		Max
Cutting	.9	1.8	\leq	864
Assembly	.8	1.2	\leq	672

$$\begin{cases} .9x + 1.8y \leq 864 \\ .8x + 1.2y \leq 672 \\ x \geq 0 \\ y \geq 0 \end{cases}$$

x	(1)
0	480
960	0

x	(2)
0	560
840	0

