10.1: Linear Systems of Equations: Two Equations

Supplementary Notes

$$\begin{cases} a_{11}x + a_{12}y &= b_1 \\ a_{21}x + a_{22}y &= b_2 \end{cases}$$

where a_{ij} and b_i $(1 \le i, j \le 2)$ are real numbers. A linear system may have a *unique solution*, *no solution*, or *infinitely many solutions*. Below are graphs of three linear systems of equations

$$\begin{cases} 2x + 6y &= 240 \\ x + y &= 100 \end{cases} \qquad \begin{cases} -3x + 9y &= 1 \\ 2x - 6y &= 1 \end{cases} \qquad \begin{cases} 2x + 4y &= 2 \\ -3x - 6y &= -3 \end{cases}$$