

Objectives

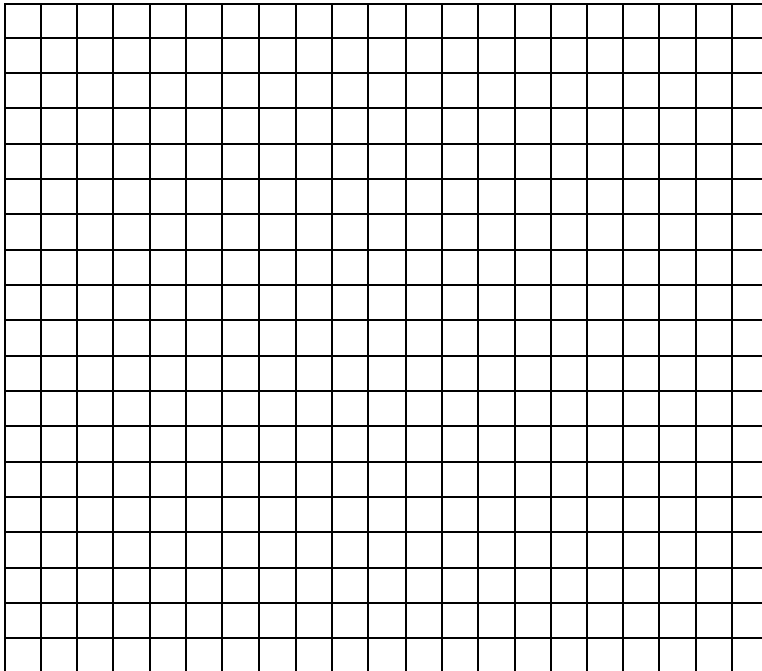
- Solve linear programming problems.

Vocabulary:

- linear programming -
- constraint -
- feasible region –

Example 1

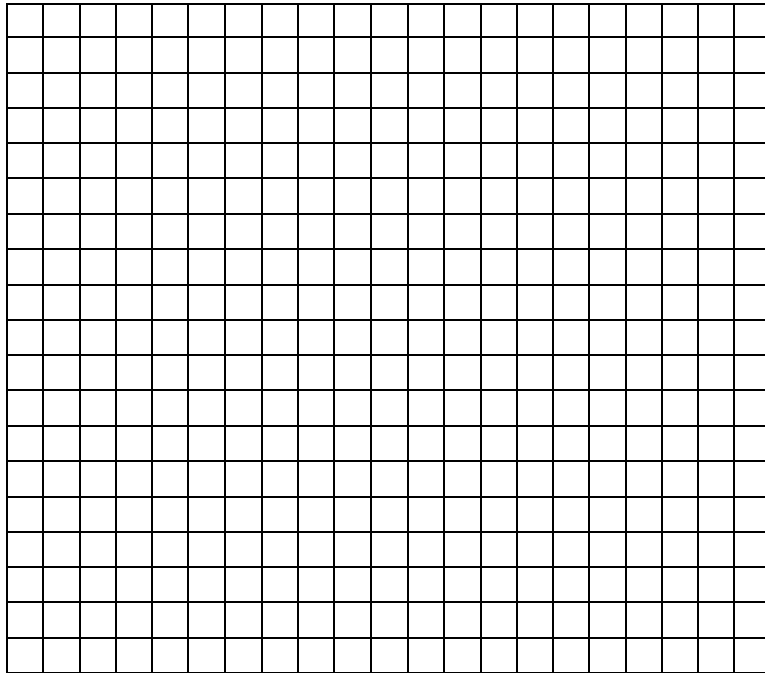
Gillian is planning a green roof that will cover 600 square feet. She will use two types of plants: blue lagoon sedum and raspberry red sedum. Each blue lagoon sedum will cover 1.2 square feet. Each red lagoon sedum will cover 2 square feet. Each plant costs \$2.50, and Gillian must spend less than \$1000. Write the restraints and graph the feasible region.



Try it!

Graph the feasible region for the following constraints.

$$\begin{cases} x \geq 0 \\ y \leq 1.5 \\ 2.5x + 5y \leq 20 \\ 3x + 2y \leq 12 \end{cases}$$

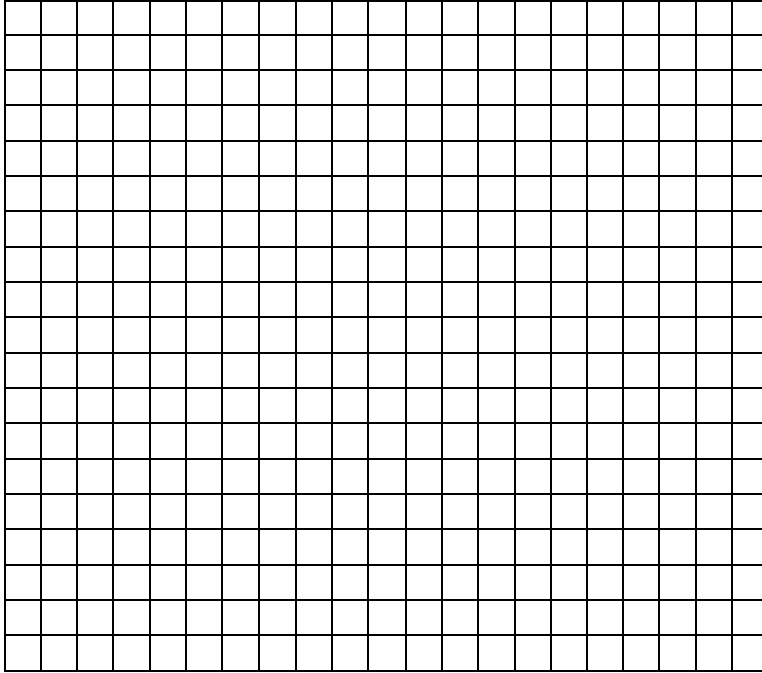


***The Vertex Principle of Linear Programming-* If an objective function has a maximum or minimum value, it must occur at one or more of the vertices of the feasible region.**

Example 2

Graph the feasible region for the following constraints. Maximize $P = -21x + 11y$

$$\begin{cases} x \geq 0 \\ y \geq 0 \\ y \geq 4x - 4 \\ y \leq x + 5 \end{cases}$$



Try it!

Graph the feasible region for the following constraints. Maximize $P = 5x + 2y$

$$\begin{cases} x \geq 0 \\ y \geq 0 \\ y \leq -x + 10 \\ y \leq 2x + 1 \end{cases}$$

