

## Section 9.5 Linear Programming

**Objective:** In this lesson you learned how to solve linear programming problems.

Course Number

Instructor

Date

### Important Vocabulary

Define each term or concept.

**Optimization**

**Linear programming**

**Objective function**

**Constraints**

**Feasible solutions**

### I. Linear Programming: A Graphical Approach

(Pages 689–692)

If a linear programming problem has a solution, it must occur . . .

If there is more than one solution to a linear programming problem, at least one of them . . .

In either case, the value of the objective function is \_\_\_\_\_.

List the steps for solving a linear programming problem:

#### *What you should learn*

How to solve linear programming problems

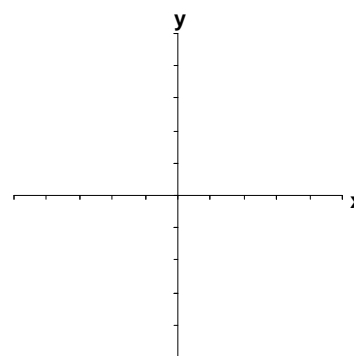
**Example 1:** The vertices of the region of feasible solutions for a linear programming problem are as follows:

- (0, 0)
- (5, 0)
- (10, 3)
- (7, 6)
- (0, 4)

If the objective function is  $z = 8x + 3y$ , find the maximum value and where it occurs.

**Example 2:** Find the minimum value of  $z = 4x + 6y$  subject to the following constraints.

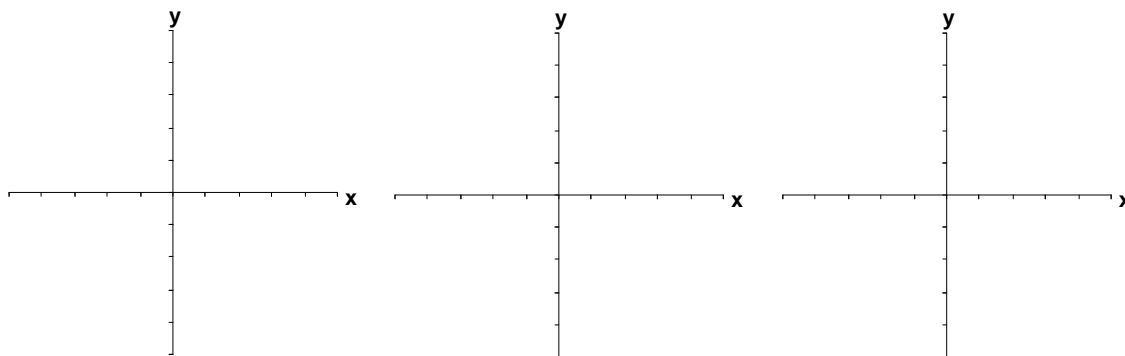
$$\left. \begin{array}{l} x \geq 0 \\ y \geq 0 \\ x + y \geq 2 \\ y \leq 4 \\ x \leq 5 \end{array} \right\}$$



**II. Applications of Linear Programming** (Pages 693–694)

Describe a real-life problem that can be solved using linear programming.

***What you should learn***  
 How to use linear programming to model and solve real-life problems



**Homework Assignment**

Page(s)

Exercises