

Section 8.6: Linear Programming

Key Topics: linear programming, constraints, set of feasible solutions, objective function, optimal solution

Recall that if a function f with domain $[a, b]$ has a largest and a smallest value, the largest value is called the _____ and the smallest value is called the _____. The process of finding the maximum or minimum value of a quantity is called _____.

The inequalities that determine the region S are called _____, the region S is called the _____, and $f = ax + by$ is called the _____. A point in S at which f reaches its maximum (or minimum) value, together with the value of f at that point, is called an _____.

Solution of a Linear Programming Problem

1. If a linear programming problem ____ a solution, it ____ occur at one of the _____ of the _____.
2. A linear programming problem may have _____ solutions, but _____ of them occurs at a _____ of the feasible solution set.
3. In any case, the _____ of the objective function is _____.

Solving a Linear Programming Problem

OBJECTIVE

Solve a linear programming problem.

List the six steps of solving a linear programming problem

Step 1 _____

Step 2 _____

Step 3 _____

Step 4 _____

Step 5 _____

Step 6 _____

Maximize $f = 27x + 15y$, subject to the constraints:
 $x \geq 0$, $y \geq 0$, $2x + 3y \leq 12$, $x + 3y \leq 9$