

LINEAR PROGRAMMING

Solution of a linear programming problem:-

In general we use the following two methods for the solution of a linear programming problem.

1. Geometrical (or graphical) method:-

If the objective function Z is a function of two variables only then the problem can be solved by graphical method. A problem of three variables can be solved by this method, but it is complicated enough.

2. Simplex method:- This is the most powerful tool of the linear programming as any problem can be solved by this method. This method is an algebraic procedure which progressively approaches the optimal solution. The procedure is straight forward and requires only time and patience to execute it manually.

Geometrical (or graphical) method for the solution of a linear programming problem:-

In this method we proceed as follows.

Step one:- First of all we consider the Constraints as equalities.

Step two :- Then we draw the lines in the plane corresponding to each equation (obtained in step one) and non-negative restrictions.

Step three :- Then we find the permissible region for the values of the variables, which is the region bounded by the lines drawn in step two.

Step four :- In the last we find a point in the permissible region obtained in step three) which gives the optimum value of Z (objective function). For this we make use of the property that at least one extreme point (corner) of the permissible region will give the optimum value. The procedure of the method may be understood by following examples.