## Step-1

*Feasible set*: A feasible set is composed of the solutions to a family of linear inequalities, and a feasible point maximizes or minimizes a certain cost function.

## Step-2

To show that following problem is feasible but unbounded.

Maximize: $x+y$

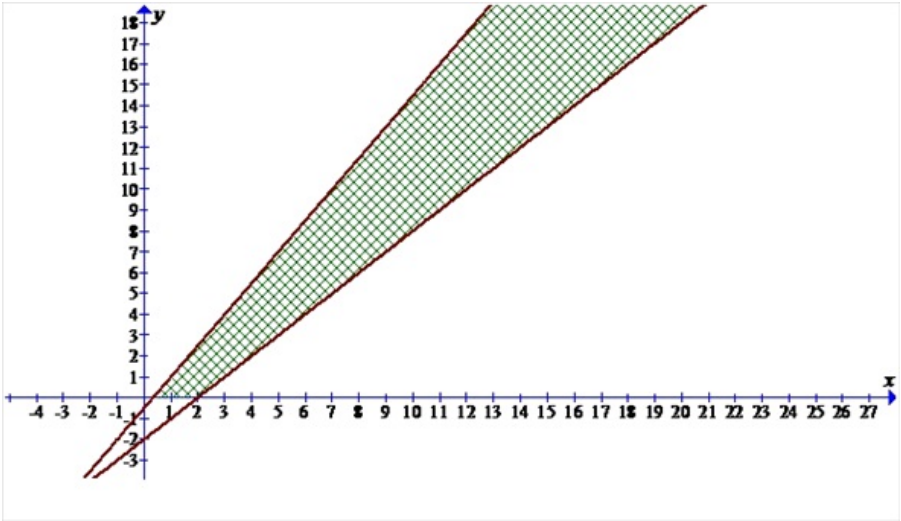
Subject to:

$$\begin{aligned} -3x+2y &\le -1 \\ x-y &\le 2 \\ x &\ge 0 \\ y &\ge 0 \end{aligned}$$

This implies that it has no optimal solution.

## Step-3

Following sketch gives the feasible region:




Here shaded region shows that the feasible region is unbounded so, it contains no optimal solution.

## Step-4

Therefore, unbounded feasible region exists for the given problem.