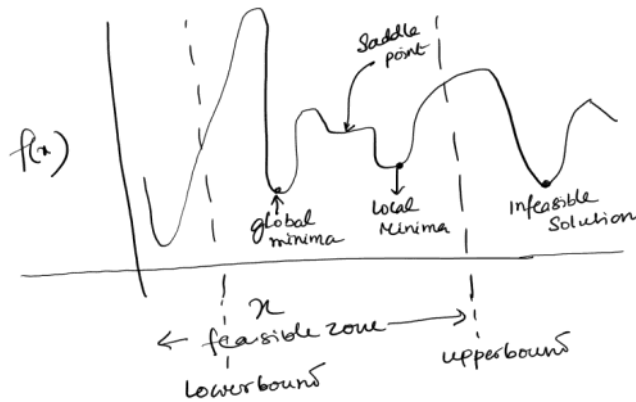


Search = "systematic examination of states, starting from initial state, ending at goal state."

Optimization = search methods w/ goal to find optimal state inside search space.

Basics:

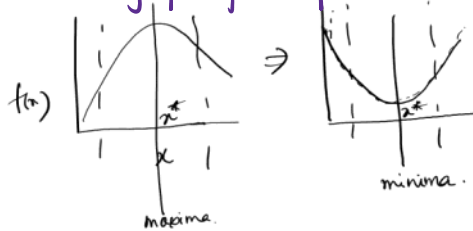


Optimization problem $\left\{ \begin{array}{l} \text{decision variable} \\ \text{objective function} \\ \text{constraint.} \end{array} \right\}$ Find X which optimizes $f(X)$ subject to equality + inequality constraints.

vector of decision variables $\rightarrow g_i(X) = 0$ \rightarrow constraints. $h_j(X) \leq 0$

vector of objectives $\rightarrow f(X)$

Duality of objective function:



Well defined problem:

feasible states
goal
stopping criteria

eval criteria
operators.

Ill structured problem:

unclear goal
contradictory solⁿ
dynamic problem space.