1. -An algorithm must have a clearly defined problem statement (what is the input? And what should be the output?).
2. -An algorithm definition must have a specific set of instructions in a specific order
3. Each step must be explicitly clear (should not be broken down again)
4. It should produce a result
5. It should be finite

How to measure efficiency

Time complexity ( time taken to run an algorithm).

Space complexity (amount of space consumed by an algorithm on a computer).

In efficiency, there are the best, average, and worst case scenarios.

Binary search

Input is a value, output is the position of the value we are looking for

Big O is a theoretical definition of the complexity of an algorithm as a function of size

e.g O(n) order of magnitude of complexity of n. that is the complexity of an algorithm in worst case scenario.

e.g the complexity of binary search algorithm is O(1) since the time taken to search for an element in any range n of numbers is constant.

O(n), o(n^2), and o(nlogn) are called polynomial runtime algorithms because for a given value of n its worst case is n^k