Insertion Sort

Q2 Array in descending order needs to be sorted ascendingly by Insertion sort.

45, 35, 25, 15, 0, -10, -20

① iterate from 1 to n in n-1 iteration.

② insert a number to its position

Steps — Repeat

1 : 35, 45, 25, 15, 0, -10, -20

2 : 25, 35, 45, 15, 0, -10, -20

3 : 15, 25, 35, 45, 0, -10, -20

4 :

⋮

(n-1) :

So arithmatic Progration.

Steps needed $\frac{(n)(n-1)}{2} = \frac{n^2 - n}{2} = O(n^2)$

Ans

Q3 If given Sorted Array?

Array: 1 2 3 4 ..... n.

∴ the algorithm just compares the values, so iterate once through the array.

(N-1) steps needed