Insulation

Give N bricks and a sequence $a_1...a_n$ as the insulation of them. If we arrange the bricks in that order into a wall then the insulation of the wall is $a_1 + a_2 + ... + a_N + max(0, a_2 - a_1) + max(0, a_3 - a_2) + ... + max(0, a_N - a_N - 1)$. Your task is to arrange the bricks so that the insulation of the wall is maximum.

Input

- The first line is N ($1 <= N <= 10^5$).
- In each of the next N lines, the i^{th} line is a_{i-1}

Output

- The maximum insulation of the wall.

Example

Input:
4
5
4
1
7

Output:
24