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# Problem A. Array

Input file:            **standard input**  
Output file:         **standard output**  
Time limit:          4 seconds  
Memory limit:       256 megabytes

Chiaki has an array of integers  $a_1, a_2, \dots, a_n$ . Chiaki can replace an element  $a_x$  to another integer  $y$ . Let the resulting array be  $b_1, b_2, \dots, b_n$ . Chiaki would like to know the minimum value of  $|a_x - y| + \sum_{k=1}^n k \cdot c_k$ , where  $c_k$  is the number of distinct integers in  $b_1, b_2, \dots, b_k$ .

## Input

There are multiple test cases. The first line of the input contains an integer  $T$ , indicating the number of test cases. For each test case:

The first line contains an integer  $n$  ( $1 \leq n \leq 10^6$ ) — the length of the array.

The second line contains  $n$  integers  $a_1, a_2, \dots, a_n$  ( $1 \leq a_i \leq 10^9$ ).

It is guaranteed that the sum of  $n$  in all test cases will not exceed  $10^6$ .

## Output

For each test case, output an integer in a single line, denoting the answer.

## Example

standard input	standard output
1 4 1 2 3 4	22