You are given n integers a_1, a_2, ..., a_n and you have to find the sum of $f(i,j)$ for all pair of i and j such that $1 \leq i \leq j \leq n$.

$$f(i,j) = |m - a_i| + |m - a_{i+1}| + \ldots + |m - a_j| \qquad \text{where } m = \text{ minimum of } a_i, a_{i+1}, \ldots, a_j.$$

$|x| =$ absolute value of x.

Input

First line contains $1 \leq T \leq 10$ test cases. Each test case contains two lines. First line contains an integer $1 \leq n \leq 50000$ and second line contain n space separated integers. Absolute value of those n integers will be smaller than or equals to 50000.

Output

Output a single line containing the sum. Please see output format for more information.

Sample Input

```
1
5
1 2 3 4 5
```

Sample Output

```
Case 1: 35
```