1369 – Answering Queries

The problem you need to solve here is pretty simple. You are give a function **f(A, n)**, where **A** is an array of integers and **n** is the number of elements in the array. **f(A, n)** is defined as follows:

```
long long f( int A[], int n ) { // n = size of A
    long long sum = 0;
    for( int i = 0; i < n; i++ )
        for( int j = i + 1; j < n; j++ )
            sum += A[i] - A[j];
    return sum;
}
```

Given the array **A** and an integer **n**, and some queries of the form:

1) **0 x v (0 ≤ x < n, 0 ≤ v ≤ 10^6)**, meaning that you have to change the value of **A[x]** to **v**.
2) **1**, meaning that you have to find **f** as described above.

Input

Input starts with an integer **T (≤ 5)**, denoting the number of test cases.

Each case starts with a line containing two integers: **n** and **q (1 ≤ n, q ≤ 10^5)**. The next line contains **n** space separated integers between **0** and **10^6** denoting the array **A** as described above.

Each of the next **q** lines contains one query as described above.

Output

For each case, print the case number in a single line first. Then for each query-type **"1"** print one single line containing the value of **f(A, n)**.

Sample Input	Output for Sample Input
1 3 5 1 2 3 1 0 0 3 1 0 2 1 1	Case 1: -4 0 4

Note

Dataset is huge, use faster I/O methods.