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;
}</pre>
```

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

- 1) $0 \times v$ ($0 \le x < n$, $0 \le v \le 10^6$), 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 $T \leq 5$, denoting the number of test cases.

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

Each of the next \mathbf{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	Case 1:
3 5	-4
1 2 3	0
1	4
0 0 3	
1	
0 2 1	
1	

Note

Dataset is huge, use faster I/O methods.