Another Contest 3 Problem 4 - Range Updates and Range Queries

Time limit: 0.25s   **Memory limit:** 256M

You have an array of N integers, initialized all to zero to begin with. Support two operations.

`INCREMENT l r a` - For each index i between l and r, increase the ith element of the array by $a \cdot (i - l + 1)$.

`SUM l r` - Compute the sum of the integers between indices l and r, inclusive.

Constraints

$1 \leq N \leq 10^6$

$1 \leq Q \leq 10^5$

$1 \leq l_i \leq r_i \leq N$

$1 \leq a_i \leq 5$

Input Specification

The first line contains two positive integers, N and Q.

The next Q lines each contain a sequence of positive integers. If the first integer in the line is 1, then three integers follow, l_i, r_i, and a_i, indicating an `INCREMENT` operation.

Otherwise, the first integer in the line is 2, and then two integers follow, l_i and r_i, indicating a `SUM` operation.

Output Specification

For each `SUM` operation, output on its own line the result of the query.

Sample Input

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

Sample Output

```
0
2
4
```