

Problem Name: It is an End Game

Problem Code: ENDGAME22

Avengers need all the five infinity stones to rectify their mistakes. To retrieve the infinity stones from different timelines, they have divided the work and are all on their way.

Natasha and Clint decided to bring soul stone which they will get from Vormir. When they reached Vormir, they came to know that in order to get the soul stone, one of them needs to sacrifice their life. They both wanted to sacrifice their life and Clint knows that he cannot stop Natasha with his combat skills so he decided to give a problem to Natasha. She is so determined that she cannot miss the chance to sacrifice herself to save the entire world, which is why she needs your help to solve this problem.

Given a coordinate (X, Y) in an infinite 2-D grid. You have to answer Q queries. Each query can be of two types:

- $+ a b$: add a to the current x coordinate and b to the current y coordinate.
- $- a b$: subtract a to the current x coordinate and b to the current y coordinate.

After each query, you have to calculate the number of good rectangles that could be formed in the grid.

A Good rectangle has the following three properties:

- The coordinates of anyone diagonals should lie on the straight line joining $(0, 0)$ and (X, Y) .
- The coordinates of the chosen diagonal should be positive.
- Let's say, $(x1, y1)$ and $(x2, y2)$ are the two diagonal coordinates that lie on the straight line, then they should satisfy the below equation:

$$\lfloor x1 \rfloor / \lceil x1 \rceil + \lfloor y1 \rfloor / \lceil y1 \rceil + \lfloor x2 \rfloor / \lceil x2 \rceil + \lfloor y2 \rfloor / \lceil y2 \rceil = 4$$

Note: It is ensured that the coordinates are always positive.

Note: It is ensured that the number of good rectangles are always less than $1e18$.

Input Format

- First line of input contains X, Y . The current coordinates in the infinite 2-D grid.
- Next line of input contains Q , the number of queries you have to answer.
- The next Q lines contain three values t, a, b . Where t is either '+' or '-' and a and b are the values by which current coordinates will update.

Output Format

For each query, you have to print the number of good triangles that could be formed.

Constraints

- $1 \leq X, Y \leq 10^9$
- $1 \leq Q \leq 10^5$
- $0 \leq a, b \leq 10^4$

Sample Input 1:

```
3 2
3
+ 3 1
- 1 0
+ 2 3
```

Sample Output 1:

```
3
0
1
```

