

Contest Duration: 2025-05-17(Sat) 22:00 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250517T2100&p1=248>) - 2025-05-17(Sat) 23:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20250517T2240&p1=248>) (local time) (100 minutes)

[Back to Home \(/home\)](#)

[🏠 Top \(/contests/abc406\)](#)

[📋 Tasks \(/contests/abc406/tasks\)](#)

[🔍 Clarifications \(/contests/abc406/clarifications\)](#)

[📊 Results ▼](#)

[🏆 Standings \(/contests/abc406/standings\)](#)

[🏆 Virtual Standings \(/contests/abc406/standings/virtual\)](#)

[📖 Editorial \(/contests/abc406/editorial\)](#)

[💬 Discuss \(https://codeforces.com/blog/entry/142913\)](https://codeforces.com/blog/entry/142913)



D - Garbage Removal

[Editorial \(/contests/abc406/tasks/abc406_d/editorial\)](#)

[🇯🇵](#) / [🇬🇧](#)

Time Limit: 2.5 sec / Memory Limit: 1024 MiB

Score : 400 points

Problem Statement

There is a grid with H rows and W columns. Let (i, j) denote the cell at the i -th row from the top and the j -th column from the left.

There are N pieces of trash on the grid; the i -th piece is at cell (X_i, Y_i) .

You are given Q queries, which you must process in order. Each query is of one of the following types:

- Type 1: Given in the format 1 x in the input. Report the number of trash pieces in the x -th row. Then, all trash pieces in the x -th row are removed from the grid.
- Type 2: Given in the format 2 y in the input. Report the number of trash pieces in the y -th column. Then, all trash pieces in the y -th column are removed from the grid.

Constraints

- $1 \leq H, W, N \leq 2 \times 10^5$
- $1 \leq X_i \leq H$
- $1 \leq Y_i \leq W$
- If $i \neq j$, then $(X_i, Y_i) \neq (X_j, Y_j)$.
- $1 \leq Q \leq 2 \times 10^5$
- For a type 1 query, $1 \leq x \leq H$.

2026-01-02 (Fri)
05:24:02 +11:00

- For a type 2 query, $1 \leq y \leq W$.
- All input values are integers.

Input

The input is given from Standard Input in the following format:

```
H W N
X1 Y1
X2 Y2
⋮
XN YN
Q
query1
query2
⋮
queryQ
```

Here, query_{*i*} denotes the *i*-th query, which is given in one of the following formats:

```
1 x
```

```
2 y
```

Output

Output *Q* lines. The *i*-th line should contain the response to the *i*-th query.

Sample Input 1

Copy

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

Copy

Sample Output 1

[Copy](#)

```
2
1
0
1
0
```

[Copy](#)

Initially, trash pieces are at cells $(1, 2)$, $(1, 3)$, $(3, 4)$, $(3, 1)$, $(2, 2)$.

In the 1st query, the 1st row contains two pieces of trash at $(1, 2)$ and $(1, 3)$, so report 2. These pieces are then removed; the remaining trash is at $(3, 4)$, $(3, 1)$, $(2, 2)$.

In the 2nd query, the 2nd row contains one piece of trash at $(2, 2)$, so report 1. This piece is then removed; the remaining trash is at $(3, 4)$, $(3, 1)$.

In the 3rd query, the 2nd column contains no trash, so report 0.

In the 4th query, the 4th column contains one piece of trash at $(3, 4)$, so report 1. This piece is then removed; the remaining trash is at $(3, 1)$.

In the 5th query, the 2nd row contains no trash, so report 0.

Sample Input 2

[Copy](#)

```
1 2 1
1 2
7
2 1
2 1
2 1
2 1
2 1
2 1
2 1
2 1
```

[Copy](#)

Sample Output 2

[Copy](#)

```
0
0
0
0
0
0
0
```

[Copy](#)

Sample Input 3

[Copy](#)

```
4 4 16
1 1
1 2
1 3
1 4
2 1
2 2
2 3
2 4
3 1
3 2
3 3
3 4
4 1
4 2
4 3
4 4
7
2 1
1 1
2 2
1 2
2 3
1 3
2 4
```

[Copy](#)

Sample Output 3

[Copy](#)

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

[Copy](#)

#telegram)

url=https%3A%2F%2Fatcoder.jp%2Fcontests%2Fab406%2Ftasks%2Fab406_d%3Flang%3Den&title=D%20-

[Rule \(/contests/abc406/rules\)](/contests/abc406/rules) [Glossary \(/contests/abc406/glossary\)](/contests/abc406/glossary)

[Terms of service \(/tos\)](/tos) [Privacy Policy \(/privacy\)](/privacy) [Information Protection Policy \(/personal\)](/personal) [Company \(/company\)](/company)

[FAQ \(/faq\)](/faq) [Contact \(/contact\)](/contact)

Copyright Since 2012 ©AtCoder Inc. (<http://atcoder.co.jp>) All rights reserved.

2026-01-02 (Fri)
05:24:02 +11:00

