Codeforces Blitz Cup 2025 Final Rounds Have Started! Join the stream now: https://youtu.be/caoeMuNNQtg.

A. Swari5 Ramadan

time limit per test: 4 s

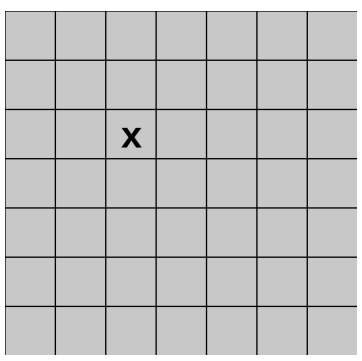
memory limit per test: 256 megabytes

Sanad doesn't like Swari5 Ramadan, as they are very noisy.

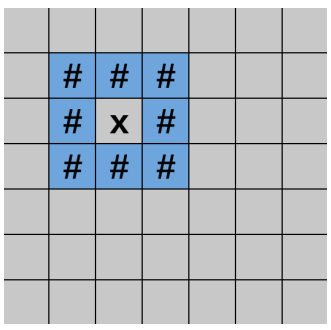
There are some naughty boys who play with these bombs in the district where Sanad lives.

The district where Sanad lives can be represented as a 2-D matrix of size $n \times m$.

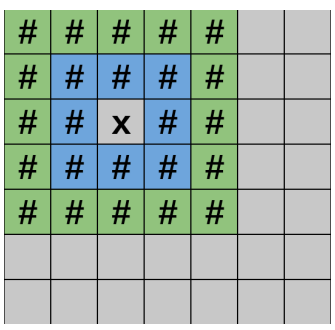
These naughty boys have thrown l bomb in the district, every bomb can be represented by 3 integer numbers x, y, s, (x, y) is the position where the bomb where thrown, s is the spread or the effects of this bomb, **See the below picture to see the effect of every bomb according to the value** s.



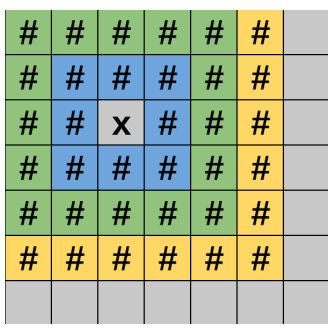
$(x = 3, y = 3, s = 0)$,one cell was affected



$(x = 3, y = 3, s = 1)$, 9 cells were affected



$(x = 3, y = 3, s = 2)$, 25 cells were affected



$(x = 3, y = 3, s = 3)$, 36 cells were affected

So your task is to print the number of affected cells, after throwing the l bombs.

Input

In the first line of input, you will be given an integer number t $(1 \leq t \leq 10^4)$ — the number of test cases.

In each test case:

in the first line, you will be given two integer numbers n, m $(1 \leq n, m \leq 2 \times 10^5), (n \times m \leq 2 \times 10^5)$ — the dimensions of the district where Sanad lives.

in the second line, you will be given one integer number l $(1 \leq l \leq 2 \times 10^5)$ — the number of bombs thrown in the district.

then l lines follow, in each line of them, you will be given three integer numbers x, y, s $(1 \leq x \leq n)$ $(1 \leq y \leq m)$ $(1 \leq s \leq 2 \times 10^5)$ — where (x, y) is the position of the thrown bomb, and s is the spread of the effect of the thrown bomb.

Note: Summation of $n \times m$ over all test cases doesn't exceed 2×10^5.

Note: Summation of l over all test cases doesn't exceed 2×10^5.

Output

In each test case, you have to print the number of affected cells, after throwing the l bombs.

Example

input Copy

```
2
7 7
3
1 1 1
5 5 1
6 6 1
7 5
3
6 4 1
5 1 1
2 2 3
```

output Copy

```
18
33
```


ICPC SCU Ramadan Challenges

Public

Participant

→ About Group

ICPC Suez Canal University Community

Every year there will be a challenge in Ramadan waiting for you.

Group website

→ Group Contests

- Ramadan Challenge 2025
- Ramadan Challenge 2024
- Ramadan Challenge Juniors 2023
- Ramadan Challenge Newcomers 2023
- Ramadan Challange — 2022
- Ramadan Challange — 2021

Ramadan Challenge 2024

Finished

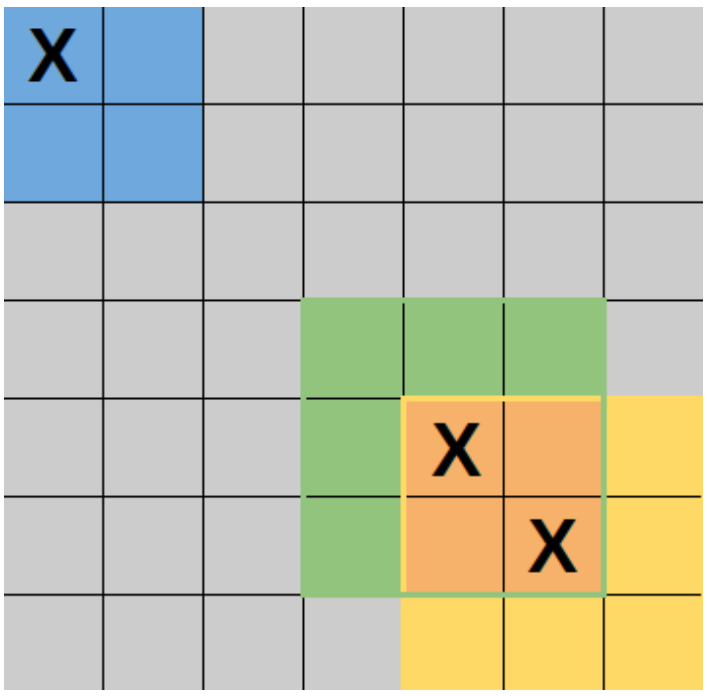
Practice

→ About Time Scaling

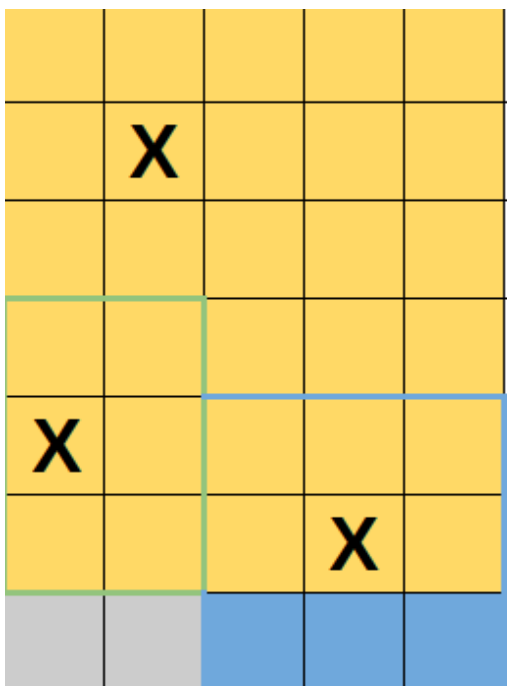
This contest uses time limits scaling policy (depending on a programming language). The system automatically adjusts time limits by the following multipliers for some languages. Despite scaling (adjustment), the time limit cannot be more than 30 seconds. Read the details by the link.

→ About Contest

Note



test case 1: number of affected cells are 18



test case 2: number of affected cells are 33

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Submit?

Language: GNU G++20 13.2 (64 bit, win

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
296466951	Dec/14/2024 19:54	Accepted
296309145	Dec/13/2024 18:08	Accepted
296307423	Dec/13/2024 17:56	Accepted
296307082	Dec/13/2024 17:53	Wrong answer on test 43
296274682	Dec/13/2024 13:30	Time limit exceeded on test 23
252986706	Mar/23/2024 23:32	Accepted
252646654	Mar/21/2024 23:28	Wrong answer on test 2
252646479	Mar/21/2024 23:27	Wrong answer on test 2
252645801	Mar/21/2024 23:21	Wrong answer on test 2
252645729	Mar/21/2024 23:20	Wrong answer on test 2

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