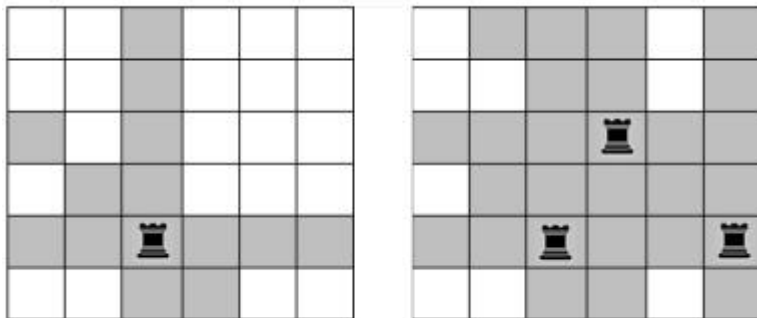


Let's assume there is a new chess piece named Super-rook. When placed at a cell of a chessboard, it attacks all the cells that belong to the **same row** or **same column**. Additionally it attacks all the cells of **the diagonal** that goes from **top-left** to **bottom-right** direction through that cell.

$N$  Super-rooks are placed on a  $R \times C$  chessboard. The rows are numbered 1 to  $R$  from top to bottom and columns are numbered 1 to  $C$  from left to right of the chessboard. You have to find the number of cells of the chessboard which are **not attacked** by any of the Super-rooks.

The picture on the left shows the attacked cells when a Super-rook is placed at cell (5, 3) of a  $6 \times 6$  chessboard. And the picture on the right shows the attacked cells when three Super-rooks are placed at cells (3, 4), (5, 3) and (5, 6). These pictures (Left and right one) corresponds to the first and second sample input respectively.



## Input

First line of input contains an integer  $T$  ( $1 \leq T \leq 20$ ) which is the number of test cases. The first line of each test case contains three integers  $R$ ,  $C$  and  $N$  ( $1 \leq R, C, N \leq 50,000$ ). The next  $N$  lines contain two integers  $r$ ,  $c$  giving the row and column of a Super-rook on the chessboard ( $1 \leq r \leq R$  and  $1 \leq c \leq C$ ). You may assume that two Super-rooks won't be placed on the same cell.

## Output

For each test case, output the case number followed by the number of cells which are **not attacked** by any of the Super-rook.

## Sample Input

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

## Sample Output

```
Case 1: 22
Case 2: 9
```