

G

Super Rooks on a Chessboard

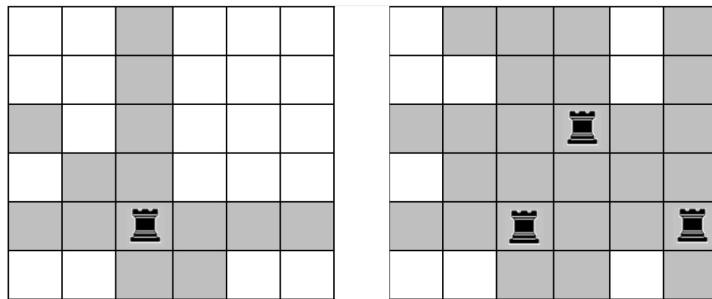
Input: Standard Input
Output: Standard Output



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 6×6 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
```

Output for Sample Input

```
Case 1: 22
Case 2: 9
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