You live in a small well-planned rectangular town in Phuket. The size of the central area of the town is H kilometers $\times$ W kilometers. The central area is divided into $H \times W$ unit blocks, each of size 1×1 km^2. There are $H + 1$ streets going in the West to East direction, and there are $W + 1$ avenue going in the North-South direction. The central area can be seen as a rectangle on the plane, as shown below.
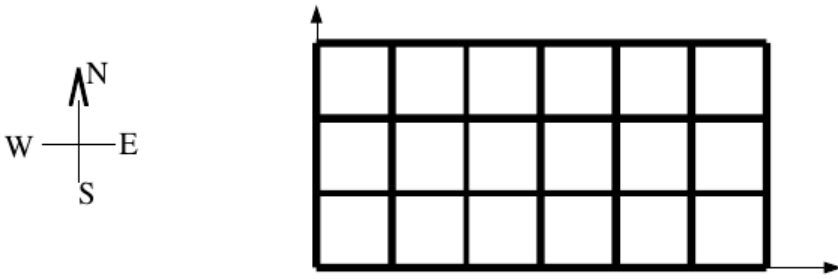

Figure 1. The central area for a town where $H = 3$, and $W = 6$.

We can identify each intersection by its co-ordinate on the plane. For example, on the Figure above the bottom-left corner is intersection $(0,0)$, and the top-right corner is intersection $(6,3)$.

Your house is at the bottom-left corner (i.e., intersection $(0,0)$) and you want to go to the university at the top-right corner (i.e., intersection (W, H)). More over, you only want to go to the university with wasting any efforts; therefore, you **only want to walk from West-to-East and South-to-North directions**. Walking this way, in the example above there are 84 ways to reach the university.

You want to go to the university for K days. Things get more complicated when each morning, the city blocks parts of streets and avenues to do some cleaning. The blocking is done in such a way that it is **not** possible to reach parts of the streets or avenues which is blocked from some other part which is blocked as well through any paths containing **only** West-to-East and South-to-North walks.

You still want to go to the university using **the same West-to-East and South-to-North strategy**. You want to find out for each day, *how many ways* you can reach the university by only walking West-to-East and South-to-North. Since the number can be very big, we only want the result **modulo 2552**.

Input

The first line contains an integer T, the number of test cases ($1 \leq T \leq 5$). Each test case is in the following format.

The first line of each test case contains 3 integers: W, H, and K ($1 \leq W \leq 1,000$; $1 \leq H \leq 1,000$; $1 \leq K \leq 10,000$). W and H specify the size of the central area. K denotes the number of days you want to go to the university.

The next K lines describe the information on broken parts of streets and avenues. More specifically, line $1 + i$, for $1 \leq i \leq K$, starts with an integer Q_i ($1 \leq Q_i \leq 100$) denoting the number of parts which are blocked. Then Q_i sets of 4 integers describing the blocked parts follow. Each part is described with 4 integers, A, B, C, and D ($0 \leq A \leq C \leq W$; $0 \leq B \leq D \leq H$) meaning that the parts connecting intersection (A, B) and (C, D) is blocked. It is guaranteed that that part is a valid part of the streets or avenues, also $C - A \leq 1$, and $D - B \leq 1$, i.e., the part is 1 km long.

Output

For each test case, for each day, your program must output the number of ways to go to the university **modulo 2552** on a separate line. i.e., the output for each test case must contains K lines.

A technical note to Java programmers:
The amount of I/O for this task is quite large. Therefore, when reading input, you should avoid using `java.io.Scanner` which is much slower than using `java.io.BufferedReader`.

Sample Input

```
2
2 2 3
1 0 0 0 1
2 1 0 2 0 0 2 1 2
1 1 1 2 1
100 150 2
1 99 150 100 150
2 99 150 100 150 100 149 100 150
```

Sample Output

```
3
4
4
1562
0
```