Grid 1.5

Time limit: 0.4s **Memory limit:** 64M

In a grid of size W by H ($1 \leq W, H \leq 10^6$), you are to determine the number of paths from the square $(1, 1)$ to the square (W, H) that do not go through X blocked off squares only moving to the right or up. ($0 \leq X \leq 2$).

Input Specification

The first line will contain three integers, W, H, and X.

The next X lines will contain two integers x and y. ($1 \leq x \leq W$) ($1 \leq y \leq H$)

Output Specification

On one line, you are to output the number of valid paths through the grid modulo $10^9 + 7$.

Subtasks

Subtask 1 [20%]

$X = 0$

Subtask 2 [30%]

$X = 1$

Subtask 3 [50%]

$X = 2$

Sample Input

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

Sample Output

```
3
```