

Problem C. Energetic turtle

Input file: `turtle.in`
Output file: `turtle.out`
Time limit: 2 seconds
Memory limit: 256 megabytes
Detailed Feedback: none

There is a grid with $N + 1$ rows and $M + 1$ columns. The turtle, which is on the cell $(0, 0)$, wants to get into the cell (N, M) . The turtle can only go up or right. There are K traps on the grid. If the turtle will get to one of these traps, it will turn up. The turtle has strength to stand up no more than T times. Calculate, how many different ways the turtle can reach the cell (N, M) . Since this number can be very large, output the remainder of his division by Z .

Input

The first line contains 5 integers N, M, K, T and Z ($1 \leq N, M \leq 300000, 0 \leq K, T \leq 20, 1 \leq Z \leq 1000000000$). Each of the following K lines contains coordinates of a cell with a trap: X, Y ($0 \leq X \leq N, 0 \leq Y \leq M$). It's guaranteed that all traps situated in different cells and there is no trap in cells $(0, 0)$ and (N, M) .

Output

Print one number – the answer.

Examples

<code>turtle.in</code>	<code>turtle.out</code>
1 1 1 0 1000 0 1	1
2 2 0 0 10	6

40% of tests contain $N, M \leq 1000$