

Problem H. Nonsense

Input file: *standard input*
Output file: *standard output*
Time limit: 1 second
Memory limit: 512 mebibytes

Given n , x and y , let $f_{n,x,y}(a,b)$ denote the value of

$$\sum_{i=a}^{n-b} \binom{i}{a} x^{i-a} \binom{n-i}{b} y^{n-i-b}.$$

Bobo also has q pairs $(a_1, b_1), \dots, (a_q, b_q)$. Find the value of $f_{n,x,y}(a_1, b_1), \dots, f_{n,x,y}(a_q, b_q)$ modulo 998244353.

Note:

$$\binom{n}{k} = \frac{n!}{(n-k)!k!}.$$

Input

The input consists of several test cases terminated by end-of-file. For each test case,

The first line contains four integers n , x , y and q .

In the following q lines, the i -th line contains two integers a_i and b_i .

- $2 \leq n \leq 10^9$
- $0 \leq x, y < 998244353$
- $1 \leq q \leq 2 \times 10^5$
- $1 \leq a_i, b_i \leq 5000$ for each $1 \leq i \leq q$
- $a_i + b_i \leq n$ for each $1 \leq i \leq q$
- In each input, the sum of $\max(a_1, b_1, \dots, a_q, b_q)$ does not exceed 5000. The sum of q does not exceed 2×10^5 .

Output

For each pair, output an integer which denotes the value modulo 998244353.

Examples

standard input	standard output
3 1 2 2	6
1 1	1
1 2	866021789
100 2 3 1	
1 1	