H. Nonsense

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 $(a_1,b_1),\ldots,(a_q,b_q)$. Find the value of $f_{n,x,y}(a_1,b_1),\ldots,f_{n,x,y}(a_q,b_q)$ **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.

- $2 \le n \le 10^9$
- $0 \le x, y < 998244353$
- $1 \le q \le 2 \times 10^5$
- $1 \le a_i, b_i \le 5000$ for each $1 \le i \le q$
- $a_i + b_i \le n$ for each $1 \le i \le q$
- In each input, the sum of $\max(a_1,b_1,\ldots,a_q,b_q)$ 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.

Sample Input

```
3 1 2 2
1 1
1 2
100 2 3 1
1 1
```

Sample Output

```
6
1
866021789
```