

Again Counting Arrays (Easy Version)

Input file: standard input
Output file: standard output
Time limit: 5 seconds
Memory limit: 512 megabytes

This is the easy version of the problem. The differences between the two versions are the constraints on n, m, b_0 and the time limit. You can make hacks only if both versions are solved.

Little R has counted many sets before, and now she decides to count arrays.

Little R thinks an array b_0, \dots, b_n consisting of non-negative integers is *continuous* if and only if, for each i such that $1 \leq i \leq n$, $|b_i - b_{i-1}| = 1$ is satisfied. She likes continuity, so she only wants to generate continuous arrays.

If Little R is given b_0 and a_1, \dots, a_n , she will try to generate a non-negative continuous array b , which has no similarity with a . More formally, for all $1 \leq i \leq n$, $a_i \neq b_i$ holds.

However, Little R does not have any array a . Instead, she gives you n, m and b_0 . She wants to count the different integer arrays a_1, \dots, a_n satisfying:

- $1 \leq a_i \leq m$;
- At least one non-negative continuous array b_0, \dots, b_n can be generated.

Note that $b_i \geq 0$, but the b_i can be arbitrarily large.

Since the actual answer may be enormous, please just tell her the answer modulo 998 244 353.

Input

Each test contains multiple test cases. The first line contains the number of test cases t ($1 \leq t \leq 10^4$). The description of the test cases follows.

The first and only line of each test case contains three integers n, m , and b_0 ($1 \leq n \leq 2 \cdot 10^5$, $1 \leq m \leq 2 \cdot 10^5$, $0 \leq b_0 \leq 2 \cdot 10^5$) — the length of the array a_1, \dots, a_n , the maximum possible element in a_1, \dots, a_n , and the initial element of the array b_0, \dots, b_n .

It is guaranteed that the sum of n over all test cases does not exceeds $2 \cdot 10^5$.

Output

For each test case, output a single line containing an integer: the number of different arrays a_1, \dots, a_n satisfying the conditions, modulo 998 244 353.

Example

| standard input | standard output |
|----------------|-----------------|
| 6 | 6 |
| 3 2 1 | 3120 |
| 5 5 3 | 59982228 |
| 13 4 1 | 943484039 |
| 100 6 7 | 644081522 |
| 100 11 3 | 501350342 |
| 1000 424 132 | |

Note

In the first test case, for example, when $a = [1, 2, 1]$, we can set $b = [1, 0, 1, 0]$. When $a = [1, 1, 2]$, we can set $b = [1, 2, 3, 4]$. In total, there are 6 valid choices of a_1, \dots, a_n : in fact, it can be proved that only

$a = [2, 1, 1]$ and $a = [2, 1, 2]$ make it impossible to construct a non-negative continuous b_0, \dots, b_n , so the answer is $2^3 - 2 = 6$.