

# Problem H: Remainder Calculator

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In this problem, you are given two positive integers  $n$  and  $m$  and then  $n$  positive integers  $a_1, a_2, \dots, a_n$ . Suppose that for each  $1 \leq i \leq n$ ,  $b_i = a_i!$ . You should find  $b_1^{b_2^{b_3^{\dots^{b_n}}}} \bmod m$ .

## Input

The number of test cases comes in the first line.

For each test case, first there are two integers  $n$  and  $m$  such that  $1 \leq n \leq 100$ . Then you are given  $a_1, a_2, \dots, a_n$ .

## Output

For each test case, print  $b_1^{b_2^{b_3^{\dots^{b_n}}}} \bmod m$ .

Sample Input	Sample Output
1 2 100 3 8	76