Problem J. Just do it

Input file:	*standard input*
Output file:	*standard output*
Time limit:	5 seconds
Memory limit:	256 mebibytes

You are given a matrix of n rows and n columns, you should calculate the permanent of this. But this matrix is special, nearly all the elements are 1. Only the cells on the main diagonal are modified.

You are given n integers a_i. You should calculate permanents of m matrices. The size of i-th matrix is $n + i - 1$.

In i-th matrix, $w_{x,y} = a_x$, if $x = y$ and $x \le n$, $w_{x,y} = 0$ if $x = y$ and $x > n$, and 1 if $x \neq y$.

The number can be very large, just output the number modulo 998244353.

Input

There are multiple test cases, terminated by a line "`0 0`".

For each test case, the first line contains two integers n and m $(1 \le n, m \le 10^5)$.

The following one line contains n integers a_i,$(0 \le a_i \le 10^6)$.

Total size of the input file does not exceed 1.2 mebibytes.

Output

For each test case, print k lines, each containing an integer, indicating the permanent of the i-th matrix.

Example

standard input	standard output
3 2 2 3 3 0 0	28 46