

## Problem G. Goodness

Input file: *standard input*  
 Output file: *standard output*  
 Time limit: 3 seconds  
 Memory limit: 1024 mebibytes

You are given two integer sequences  $A = (a_1, \dots, a_N)$  and  $B = (b_1, \dots, b_M)$  such that  $N \geq M$ , that is,  $A$  is always longer than or has the same length as  $B$ .

Each element is a positive integer less than or equal to  $L$ . The *goodness* of the pair of sequences  $(A, B)$  is defined to be the number of bijections (that is, one-to-one invertible functions)  $f$  from  $1, \dots, L$  to  $1, \dots, L$  such that  $B$  is a contiguous subsequence of  $(f(a_1), \dots, f(a_N))$ .

A contiguous subsequence of a sequence is a sequence obtained by removing zero or more elements from the beginning and the end of the original sequence.

Given two sequences  $A$  and  $B$ , calculate the goodness of the pair  $(A, B)$ . Since the answer may be huge, find it modulo 998 244 353.

### Input

The first line of the input consists of three integers:  $N$ , the length of the sequence  $A$  ( $1 \leq N \leq 300\,000$ ),  $M$ , the length of the sequence  $B$  ( $1 \leq M \leq N$ ), and  $L$ , the largest integer allowed ( $1 \leq L \leq 300\,000$ ).

The second line consists of  $N$  positive integers from 1 to  $L$ , inclusive, that represent the sequence  $A$ .

The third line consists of  $M$  positive integers from 1 to  $L$ , inclusive, that represent the sequence  $B$ .

### Output

Print the goodness of the pair of sequences  $(A, B)$  modulo 998 244 353.

### Examples

<i>standard input</i>	<i>standard output</i>
9 3 3 1 1 2 3 2 1 1 2 1 1 1 2	1
1 1 6 2 2	120
8 3 3 3 2 3 2 3 1 3 1 1 2 1	4