
Problem A. Order-Preserving Partition

Input file: *standard input*
Output file: *standard output*
Time limit: 2 seconds
Memory limit: 512 mebibytes

Bobo has two permutations: $P = \{p_1, p_2, \dots, p_n\}$ and $Q = \{q_1, q_2, q_3, q_4\}$. He would like to partition P into four non-empty and contiguous parts in such a manner that:

- The numbers in each part can be rearranged to form an *interval* of values: an increasing sequence where each element is greater than the previous by exactly one.
- For all $1 \leq i < j \leq 4$, $(s_i - s_j) \cdot (q_i - q_j) > 0$ where s_i is the minimum value in the i -th part.

Bobo wants to know the number of such partitions. As the number may be very large, you just need to print the answer modulo $(10^9 + 7)$.

Input

The input contains zero or more test cases, and is terminated by end-of-file. For each test case:

The first line contains an integer n , the length of the first permutation ($4 \leq n \leq 10^6$).

The second line contains n integers $p_1, p_2, \dots, p_n$.

The third line contains four integers q_1, q_2, q_3, q_4 .

It is guaranteed that the sum of all n does not exceed 10^6 .

Output

For each test case, output an integer denoting the answer.

Example

standard input	standard output
10	0
2 1 4 3 10 9 8 7 5 6	84
2 4 1 3	
10	
1 2 3 4 5 6 7 8 9 10	
1 2 3 4	