

Problem

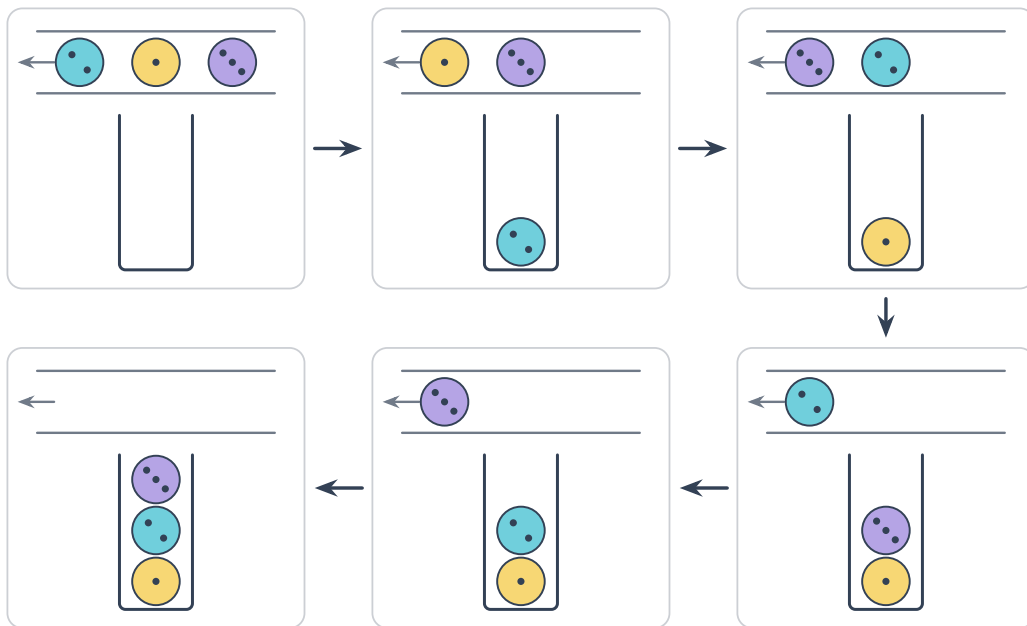
Queue Editor 2

Time limit: 2 seconds

To celebrate the fact that no team solved the problem “Queue Editor” at The 3rd Universal Cup Semifinals, Little Cyan Fish has come up with a new problem involving a queue and... this time, a stack! He has n balls labeled from 1 to n . The balls are initially arranged in a queue, and he also has an empty stack. While the queue is not empty, he performs the following steps:

1. Remove the ball at the front of the queue. Let x be its label.
2. While the stack is not empty and the label of its top ball is greater than x , remove the top ball from the stack and append it to the back of the queue. The balls are appended in the order in which they are removed.
3. Push the ball labeled x onto the top of the stack.

It can be shown that the queue becomes empty after finitely many steps. Find the total number of times Little Cyan Fish pushes a ball onto the stack before this happens.



Input

There are multiple test cases. The first line of the input contains a single integer T ($1 \leq T$), indicating the number of test cases.

For each test case, the first line contains a single integer n ($1 \leq n \leq 5 \times 10^5$), indicating the number of balls. The second line contains n integers $a_1, a_2, \dots, a_n$ ($1 \leq a_i \leq n$), indicating the labels of the balls in the initial queue from front to back. It is guaranteed that $a_1, a_2, \dots, a_n$ form a permutation of $1, 2, \dots, n$.

It is guaranteed that the sum of n over all test cases does not exceed 5×10^5 .

Output

For each test case, output a single line containing a single integer, indicating the total number of times a ball is pushed onto the stack.

Sample Input 1

4
1
1
3
1 2 3
3
2 1 3
3
3 1 2

Sample Output 1

1
3
5
4

Sample Input 2

2
3
2 3 1
6
1 3 4 6 2 5

Sample Output 2

6
15

In the first example, the sequences of labels pushed onto the stack are (1), (1, 2, 3), (2, 1, 3, 2, 3), and (3, 1, 2, 3) in the four test cases, respectively. The figure in the problem statement illustrates the third test case in the first example.

In the first test case of the second example, the sequence of pushed labels is (2, 3, 1, 3, 2, 3), so the answer is 6. In the second test case of the second example, the sequence is (1, 3, 4, 6, 2, 5, 6, 4, 3, 6, 5, 4, 6, 5, 6), so the answer is 15.