

Problem H. Inverted Subarray

Input file: *standard input*
Output file: *standard output*
Time limit: 2 seconds
Memory limit: 1024 mebibytes

You are given a permutation p of length n (an array of n integers where each number from 1 to n appears exactly once).

Let's say that a contiguous subarray $[l, r]$ is *inverted* if at least one of the following conditions is met for each i ($l \leq i \leq r$):

- there exists a j ($l \leq j \leq r$) such that $j < i$ and $p_j > p_i$;
- there exists a j ($l \leq j \leq r$) such that $j > i$ and $p_j < p_i$;

Your task is to find the maximum possible length of an inverted subarray of the permutation p .

Input

The first line contains a single integer t ($1 \leq t \leq 10^4$) — the number of test cases.

The first line of each test case contains a single integer n ($2 \leq n \leq 3 \cdot 10^5$).

The second line contains n integers p_1, p_2, \dots, p_n ($1 \leq p_i \leq n$). The array p is a permutation.

Additional constraint on the input: the sum of n over all test cases doesn't exceed $3 \cdot 10^5$.

Output

For each test case, print a single integer — the maximum possible length of an inverted subarray of the permutation p (or 0 if there is no such subarray).

Example

standard input	standard output
5	2
3	0
1 3 2	4
2	5
1 2	3
4	
2 1 4 3	
5	
5 4 3 2 1	
7	
2 1 3 6 4 5 7	