COCI '11 Contest 1 #5 Sort

Time limit: 1.0s **Memory limit:** 32M

Consider the following sorting algorithm:

```
reverse-sort(sequence a)
    while (a is not in nondecreasing order)
        partition a into the minimum number of slopes
        for every slope with length greater than one
            reverse(slope)
```

A slope is defined as a decreasing consecutive subsequence of a. The reverse procedure will reverse the order of the elements in a slope.

You are given a permutation of the first N natural numbers whose slopes all have even length when partitioned for the first time. Determine the total number of times reverse is called to reverse-sort the given permutation.

Input Specification

The first line of input contains the positive integer N $(2 \leq N \leq 100\,000)$.

The second line of input contains a permutation of the first N natural numbers that needs to be sorted.

Output Specification

The only line of output must contain the number of times that reverse is called.

Sample Input 1

```
2
2 1
```

Sample Output 1

```
1
```

Sample Input 2

```
4
4 3 2 1
```

Sample Output 2

```
1
```

Sample Input 3

```
4
3 1 4 2
```

Sample Output 3

```
3
```