Zucchini Zipping

Jim has N zucchinis. Each zucchini has a unique height between 1 and N. When Jim started, he had his zucchinis in order from smallest to longest. Then he started zipping them together. He lost count of how many zips he did though... he needs you to write a program that will give a lower bound (the minimum number) of zips that Jim must have done.

What is a zip you may ask? Well it's simple. Jim splits his zucchinis into two lines, and then zips them up. Here is an example.

Let's say Jim has 5 zucchinis.

`1 2 3 4 5`

Then Jim splits his zucchinis into two lines.

```
1 2   <-- line 1
3 4 5 <-- line 2
```

Now Jim zips them up by taking a zucchini off the left side of either line and adding it to a new line. For example:

```
1 2
4 5
3   <-- Jim took the first zucchini from line 2 and added it to a new line
```

```
1 2
5
3 4 <-- Now Jim took the second zucchini from line 2 and added it to this line
```

```
2
5
3 4 1 <-- Now Jim took the first zucchini from the first line
```

```
2
3 4 1 5 <-- Now Jim took the last zucchini from line 2
```

```
3 4 1 5 2 <-- After adding the last zucchini back, we have a zipped zucchini line!
```

These initial five zucchinis could have been zipped in many different ways. For example,

`5 1 2 3 4`, `4 5 1 2 3`, `1 2 3 4 5`, `2 3 4 5 1`, etc.

However, no matter what way Jim zipped his zucchinis he could not have ended up with `3 2 4 5 1`. That is unless Jim zipped his zucchinis twice.

```
1 2 3 4 5
3 4 5 1 2 <-- After the first zip
3 2 4 5 1 <-- After the second zip
```

Given an arrangement of N zucchinis, what is the minimum number of zips that Jim must have done to end up with that arrangement?

Input Format

The first line contains a single integer T, the number of test cases.

The next $2 \cdot T$ lines contain the T test cases. Each group of two lines is a test case, with the first line in the group stating N, the number of zucchinis in the arrangement, and the second line containing N space separated integers from 0 to N, in the arrangement that Jim set up.

Constraints

$1 \leq T \leq 10$

$1 \leq N \leq 2^{32}$

Each zucchini height is a number h with $1 \leq h \leq N$. It is guaranteed that the N zucchini heights are a permutation of $1 \ldots N$, meaning each integer height between 1 and N is represented exactly once.

Output Format

T lines, each line containing the minimum number of zips for the given test case.

Sample Input 0

```
1
10
10 4 9 5 6 1 3 7 2 8
```

Sample Output 0

```
3
```

Explanation 0

There is only one test case in this input.

The test case has 10 zucchinis, so we start out with

`1 2 3 4 5 6 7 8 9 10`.

Jim's first zip goes like this:

` 1 2 3 4 5 6 | 7 8 9 10

1 7 2 8 9 10 3 4 5 6 `

Jim's second zip goes like this:

` 1 7 2 8 9 | 10 3 4 5 6

10 1 3 7 2 8 4 9 5 6 `

Jim's third zip goes like this:

` 10 1 3 7 2 8 | 4 9 5 6

10 4 9 5 6 1 3 7 2 8 `

There is no way to get this arrangement using only one or two zips, but three zips can achieve is, as shown above. Thus we output a single line containing `3`.