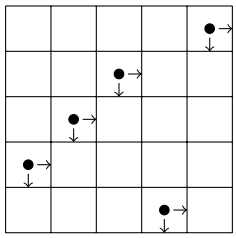
Problem B - The Brush

Consider a $n \times n$ sized chess board, we will put n rooks on it so that there will be no two rooks can attack each other.

Little Tomato noticed that each empty cell is under attack by some rooks in this setting, so he decided to make some changes – put some coins under the top-left corner of the board so that the entire board is skewed. Then he declared that, all the rooks can only attack to positions that are (i) in the same row or the same column, and (ii) is lower than the rook's height (that is, to its right or bottom).



Now how many empty cells are under attack now? Of course, since Little Tomato has no coins now, he definitely needs to make some change before making some changes :P

Input

First line contains an integer T ($1 \leq T \leq 100$) denoting the number of test cases.

For each test case, first line contains an integer n ($1 \leq n \leq 100000$). The next line contains a permutation of 1 to n: $a_1, a_2, \cdots, a_n$, where a_i denotes a rook at i-th row and a_i-th column. The size of input file is less than 10 MB.

Output

For each test case, please output the number of empty cells that are under attack in the new setting.

Sample Input

```
3
3
1 2 3
5
5 4 3 2 1
```

```
5
5 3 2 1 4
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Sample Output

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6
10
13
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