

Given 2 permutations of integers from 1 to N , you need to find the minimum number of operations necessary to change both or any one of them in such a way that they become exactly same. Here only two operations are allowed: either you can delete an integer from any position or you can insert an integer into any position, but replacing one integer by another one is not allowed.

Say, $N = 5$ and the permutations are $\{1, 3, 5, 4, 2\}$ and $\{1, 5, 4, 3, 2\}$. Then we need just 2 operations: we need to delete 3 from the 2nd position and insert it in the 4th position of the first permutation, or we can delete 3 from both the permutations, which also needs two operations.

Input

First line of the input contains a positive integer T ($T \leq 40$). Each of the following T cases contains 3 lines for each case: the 1st line contains a single integer N ($1 \leq N \leq 200,000$) and the next two lines contain the two permutations of the integers.

Output

For each case, print a line of the form 'Case x : $< y >$ ', where x is the case number and y is the number of operations necessary to covert the 1st permutation to the 2nd permutation.

Sample Input

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

Sample Output

```
Case 1: 2
Case 2: 6
```