2. Go the Distance

Program Name: distance.java Input File: distance.in

Given a sequence of unsorted numbers, determine how badly out of order they are.

Write a program that, for any given sequence of unique natural numbers, will compute the 'distance' between that original ordering and the same set of numbers sorted in ascending order. The distance should be computed by calculating how far displaced each number is in the original ordering from its correct location in the sorted list and summing those results.

For instance, given the list 9 2 5 6 3, the target list would be 2 3 5 6 9. In this case, the 9 is four positions out of place, the 2 is one position out of place, the 5 and 6 are in the correct locations, and the 3 is three positions out of place. Therefore, the distance is 4+1+0+0+3=8.

Input

The first line of input will consist of a single integer, *n*, indicating the number of lines in the input. Each of the following *n* lines represents one sequence of numbers requiring analysis. These lines all begin with an additional integer, *m*, indicating the number of elements in the sequence.

Lists will contain at most 20 elements, each of which will be less than 100.

Output

For each sequence in the input, display the distance between the given ordering and and its sorted (ascending) counterpart.

Example Input File

```
3
5 9 2 5 6 3
20 20 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
3 1 49 99
```

Example Output To Screen

```
8
38
0
```