6990 Drawing Contest

Liliputs are holding a drawing competition for K kids, but with K human-sized pencils stolen from humans. In order to make life easier for the kids, the organizers want to give a pencil to each kid in a way such that the sum of the absolute differences of the height of a kid and the length of the pencil assigned to him/her is minimized. What is the minimum sum of absolute differences that can be achieved?

Input

The first line contains the number of test cases N ($0 < N \leq 3$).

For each test case, the first line contains the number of kids and pencils K ($0 < K \leq 100$). The second line contains K positive integers, each containing the height in millimeter of a kid. The third line contains K positive integers, each containing the length in millimeter of a pencil.

Output

For each test case, print the case number, followed by a colon, followed by a single space, followed by a single integer indicating the minimum sum of absolute differences achieved (in millimeter).

Sample Input

```
2
5
51 60 51 72 70
65 60 88 72 88
4
123 234 188 175
219 334 122 233
```

Sample Output

```
Case 1: 69
Case 2: 190
```