



Function

- Time limit: 1 second
- Memory limit: 256 MB

Give you two arrays A and B which are given in ascending order. A number like x Find the value of the above expression to be minimized:

$$\sum_{i \in A \cup B} |i - x|$$

Important

If your algorithm of order $\log n$ Otherwise, only 50% of the marks will be awarded to you.

Input

In the first line of the input n Come. In the next two lines n The number is the first line A and the second line B Is.



▼ Questions

40

Function

60

intersection

All submissions

Final submissions

$$1 \leq n \leq 1000000, -1000000000 \leq A_i, B_i \leq 1000000000$$

Output

number x Print with exactly one decimal place.

Example

Sample input 1

```
5
1 12 15 26 38
2 13 17 30 45
```

Sample output 1

```
16.0
```

Sample input 2

```
5
1 3 5 11 17
9 10 11 13 14
```

Sample output 2

Sample output 2

10.5

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