Closest pair   P70827_en

Desè Concurs de Programació de la UPC - Semifinal (2012-06-30)

Given several points on the plane, compute the Euclidean distance between the closest pair.

Input

Input consists of the coordinates of n different points. The coordinates are real numbers with absolute value at most 10^5. Assume $2 \leq n \leq 10^5$.

Output

Print the smallest distance between all pairs of points, with five digits after the decimal point. The input cases have no precision issues.

Sample input 1

```
1.2 4.5
2.4 1.2
3.3 1.1
4.4 4.4
7.7 1.1
1.1 2.1
8.6 1.9
3.3 9.0
```

Sample output 1

```
0.90554
```

Sample input 2

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

Sample output 2

```
1.41421
```

Problem information

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