

Clusters

Description

There are n points on the plane. Claire wants to divide them into k clusters, and the distance between two clusters is defined as the distance between the two closest points. Now she wants to know the distance between two closest clusters after dividing the points.

Input Format

The first line contains two integers n, k .

Then the next n lines, each line contains two integers x, y , depicting the coordinate of a point.

Output Format

One real number, the distance, precise to two decimal.

Sample

Sample Input

```
4 2
0 0
0 1
1 1
1 0
```

Sample Output

```
1.00
```

Hint

For 100% data, $2 \leq k \leq n \leq 10^3$, $0 \leq x, y \leq 10^4$.

