

# CCC '01 S4 - Cookies

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## Canadian Computing Competition: 2001 Stage 1, Senior #4

Making chocolate chip cookies involves mixing flour, salt, oil, baking soda and chocolate chips to form dough which is rolled into a plane. Circles are cut from the plane, placed on a cookie sheet, and baked in an oven for about twenty minutes. When the cookies are done, they are removed from the oven and allowed to cool before being eaten.

We are concerned here with the process of cutting a single round cookie that contains all the chocolate chips. Once the dough has been rolled, each chip is visible in the planar dough, so we need simply to find a cookie cutter big enough to circle all the chips.

What is the diameter of the smallest possible round cookie containing all the chips?

## Input Specification

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Input consists of a positive integer  $n$  not greater than 10, followed by  $n$  lines of input.

Each line gives the coordinates of one chocolate chip on the plane.

Each coordinate is an integer in the range  $[0, 1000]$ .

## Output Specification

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Output consists of a single real number, the diameter of the cookie rounded to two decimal places.

## Sample Input 1

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

## Sample Output 1

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```
1.41
```

## Sample Input 2

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```
3
1 1
10 0
0 0
```

## Sample Output 2

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```
10.00
```