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## Problem F



MEMORY LIMIT  
**1024 MB**



CPU TIME LIMIT  
**3 seconds**



DIFFICULTY  
**Not Available**

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ICPC North America  
Regional Contests  
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OTHERWISE CLEAR CUBE.

He wants to drill out the portion of the cube containing the flaws so that he can plug the removed volume with new, clear acrylic. He would prefer to do this in one drilling step. For stability's sake, the drill must enter the cube only once, perpendicular to one of its faces. The cube's faces are parallel to the coordinate axes.

Given the  $(x, y, z)$  positions of the flaws, and treating the size of the flaws as negligible, what is the smallest diameter drill bit that can be used to remove the flaws in one operation??

## Input

The first line of input contains an integer  $N$  denoting the number of flaws.  
 $3 \leq N \leq 5\,000$

This is followed by  $N$  lines of input, each containing three real numbers in the range  $-1\,000.0 \dots 1\,000.0$ , denoting the  $(x, y, z)$  coordinates of a single flaw. Each number contains at most 6 digits following a decimal point. The decimal point may be omitted if all succeeding digits are zero.

## Output

Print the diameter of the smallest drill bit that would remove all the flaws.

The answer is considered correct if the absolute or relative error is less than  $10^{-4}$

### Sample Input 1

```
3
1.0 0.0 1.4
-1.0 0.0 -1.4
0.0 1.0 -0.2
```



### Sample Output 1

```
2.0000000000
```



### Sample Input 2

```
5
1.4 1.0 0.0
-0.4 -1.0 0.0
-0.1 -0.25 -0.5
-1.2 0.0 0.9
0.2 0.5 0.5
```



### Sample Output 2

```
2.0000000000
```



### Sample Input 3

```
8
435.249 -494.71 -539.356
455.823 -507.454 -539.257
423.394 -520.682 -538.858
446.507 -501.953 -539.37
434.266 -503.664 -560.631
445.059 -549.71 -537.501
449.65 -506.637 -513.778
456.05 -499.715 -561.329
```



### Sample Output 3

```
49.9998293198
```



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