1889 - Circle of Bugs

Description

The past year, Jose Ernesto Lara said: "*Bugs, ugh. Who doesn't hate them? Every year, there is a season when the UCi gets swarmed by hundreds of centipedes. Fortunately, they are harmless (they don't sting, as I know so far), but they get everywhere! It's usual to be walking down a hallway and hear a faint pop, and when you look down, there is a squashed centipede under your shoe. You may think that I'm complaining about nothing, but try cleaning the floor afterwards!*"

Yes, you know what Lara is talking about: "***The Bug Season***"!!!

This year, is taking place something interesting with the bugs. Now, they love forming circles, joining their heads with the back-parts of others bugs. I think that, maybe it is their reproduction way (for surviving the new climatic changes). Curiosly, each circle of bugs has exactly ten bugs. Some circles are more big than others, due to the dimensions of their bugs. So, can you calculate the radii of the bigest circle that can be formed with a set of ten bugs from all of them.

Input specification

The first line of the input is **10 <= N <= 1000**, the number of bugs. In each of the **N** following lines, there is a integer number between **1** and **100**, the dimension of the **i**-th bug, for **1 <= i <= N**.

Output specification

You must print one line containing a real number rounded up to four decimal places: the radii of the bigest circle that can be formed with a set of ten bugs from the **N** bugs given.

Sample input

```
15
10
11
12
13
14
15
16
17
```

```
18
19
20
30
40
50
99
```

Sample output

```
51.5662
```

Hint(s)

= acos(-1) = 2×acos(0)

Source	Yonny Mondelo Hernández
Added by	**ymondelo20**
Addition date	2012-06-15
Time limit (ms)	5000
Test limit (ms)	1000
Memory limit (kb)	130000
Output limit (mb)	64
Size limit (bytes)	30000
Enabled languages	Bash C C# C++ Java Pascal Perl PHP Python Ruby Text