**Copper Hydroxide**

**Time Limit: Memory Limit: 256MB**

Copper Hydroxide (chemical formula Cu(OH)2) is a pale greenish blue or bluish green solid. It is a beautiful strong base, as this problem is for strong and beautiful coders. Let’s prove it!

Given a vector in . A vector is non-increasing if and only if .

The Euclide distance between two vectors is calculated as

Find a non-decreasing vector in such that is minimized.

**Input:**

The first line contains a natural number,

The second line contains real numbers . Each of them has at most 3 decimal digits in the input.

**Output:**

Print one real number, which is the , for all non-increasing vector . The answer is accepted if the absolute error or relative error does not exceed .

**Sample 1:**

|  |  |
| --- | --- |
| 3  1 1 2 | 0 |

**Sample 2:**

|  |  |
| --- | --- |
| 4  3.368 97.561 80 353 | 12.41750218 |

**Explanation:**

In sample 1, , which is already non-decreasing. We choose then .

In sample 2, we choose . Then, …

**Bonus:** Find out what Cu(OH)2 facts that correspond to numbers in sample 2. Good luck!