

Find the Gap

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 512 megabytes

You are given n points in the 3D space. Please find two parallel planes such that all the n points are inside the gap of the two parallel planes, and the length of the gap is minimized.

Input

The first line of the input contains a single integer n ($1 \leq n \leq 50$), denoting the number of points.

Each of the following n lines contains three integers x_i, y_i and z_i ($1 \leq x_i, y_i, z_i \leq 10\,000$), describing a point (x_i, y_i, z_i) . It is guaranteed that all the n points are pairwise distinct.

Output

Print a single line containing a single real number: the minimum possible length of the gap with an absolute or relative error of at most 10^{-9} .

Precisely speaking, assume that your answer is a and the jury's answer is b . Your answer will be considered correct if and only if $\frac{|a-b|}{\max\{1,|b|\}} \leq 10^{-9}$.

Examples

standard input	standard output
8 1 1 1 1 1 2 1 2 1 1 2 2 2 1 1 2 1 2 2 2 1 2 2 2	1.0000000000000000
5 1 1 1 1 2 1 1 1 2 1 2 2 2 1 1	0.707106781186548