H. Points in triangle

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

You are given a set of points on a plane with positive integer coordinates. Find a triangle of minimum area with vertices in points $(0, 0)$, $(A, 0)$ and $(0, B)$ (A and B are unknown positive integers) that contains all the given points inside it (points on the edges count towards being inside).

Input

The first line of the input contains an integer N ($1 \le N \le 100$) — the number of points. The following N lines contain pairs of numbers X and Y ($1 \le X, Y \le 100$) - the coordinates of the points. All points are distinct.

Output

Output one floating-point number — the minimal area of the triangle. The answer is considered to be correct if its absolute or relative error does not exceed 10^{-4}.

Examples

input
2 1 1 1 3
output
6.0

input
2 2 1 1 2
output
4.5