# Problem A. Largest Triangle

| | |
|---|---|
| **Time limit** | 2000 ms |
| **Mem limit** | 1048576 kB |
| **OS** | Linux |

Given $N$ points on a 2-dimensional space, determine the area of the largest triangle that can be formed using 3 of those $N$ points. If there is no triangle that can be formed, the answer is 0.

## Input

The first line contains an integer $N$ ($3 \leq N \leq 5\,000$) denoting the number of points. Each of the next $N$ lines contains two integers $x$ and $y$ ($0 \leq x, y \leq 4 \cdot 10^7$). There are **no** specific constraints on these $N$ points, i.e. the points are not necessarily distinct, the points are not given in specific order, there may be 3 or more collinear points, etc.

## Output

Print the answer in one line. Your answer should have an absolute error of at most $10^{-5}$.

## Sample 1

| Input | Output |
|---|---|
| 7<br>0 0<br>0 5<br>7 7<br>0 10<br>0 0<br>20 0<br>10 10 | 100.00000 |