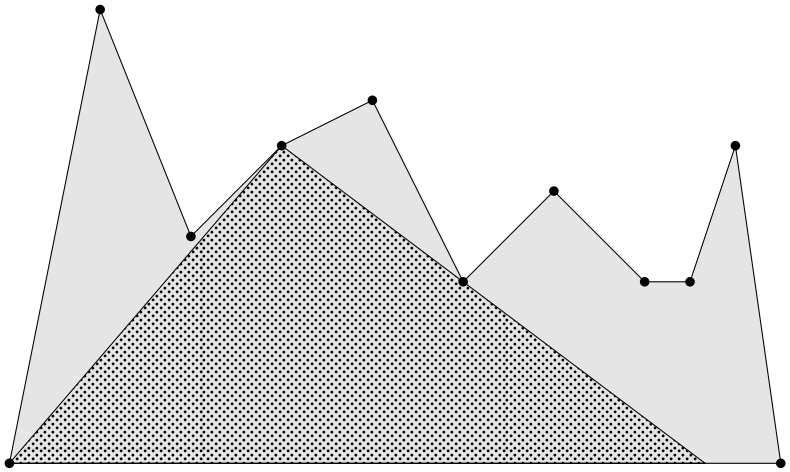
Problem E : Largest Triangle

A "terrain" is an x-monotone polygon defined by the points $p_1, \ldots, p_n$ where each point p_i has coordinates (x_i, y_i), and the following three conditions hold:

- $y_1 = y_n = 0$
- $y_i > 0$ for $1 < i < n$
- $x_i < x_{i+1}$ for $1 \leqslant i < n$

Given a terrain defined by the points $p_1, \ldots, p_n$, find the largest triangle that fits entirely within the terrain, and one of its three vertices is positioned at one of the terrain points p_2 through p_{n-1}.



Input

The first line of input contains an integer n, representing the number of points in the terrain ($3 \leqslant n \leqslant 10^5$). The i^{th} line in the following n lines consists of two space-separated integers x_i and y_i, representing the point p_i of the terrain ($0 \leqslant x_i, y_i \leqslant 10^9$).

Output

Print the area of the largest triangle contained within the terrain. Your output will be considered correct if its absolute or relative error is at most 10^{-6}.

Example

Standard Input	Standard Output
11 0 0 2 10 4 5 6 7 8 8 10 4 12 6 14 4 15 4 16 7 17 0	53.666667