FURTHEST

Given N coordinates on an xy-plane, find the coordinates whose distance *from the origin* (the coordinates $(0, 0)$) is the highest.

Distance between coordinates (X_1, Y_1) and (X_2, Y_2) is

$$\sqrt{(X_1 - X_2)^2 + (Y_1 - Y_2)^2}$$

Input

The first line contains an integer N ($1 \leqslant N \leqslant 1\,000$), the number of coordinates. Each of the following N lines contains integers X_i and Y_i ($-10\,000 \leqslant X_i, Y_i \leqslant 10\,000$) separated by a space, denoting coordinates (X_i, Y_i).

Output

Output the coordinates whose distance from the origin is the highest in the same format as the input.

Example

Input	Output
5 2 2 4 -4 -6 4 7 0 -4 -5	-6 4