

# Rectangle

You are given  $n$  points on the coordinate plane.

Write a program which calculates the largest possible area of a rectangle such that each of its vertices

is one of the given points. You may assume that such a rectangle exists.

## Input

The input is read from standard input. The first line of input contains an integer  $n$ , the number of given points.

Each of the following  $n$  lines contains the coordinates of one point, two integers separated by a space.

The coordinates will be between  $-10^8$  and  $10^8$ .

No two points will be located at the same coordinates.

## Output

Output should be written to standard output. The first and only line of output should contain a single

integer, the largest possible area of a rectangle.

## Example

### Input

```
8
-2 3
-2 -1
0 3
0 -1
1 -1
2 1
-3 1
-2 1
```

### Output

