

## 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.

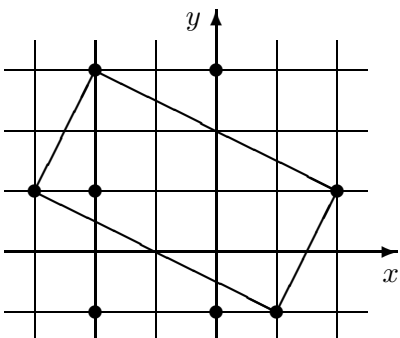
Each of the following  $n$  lines contains the coordinates of one point, two integers separated by a space. The coordinates will be between  $-10^8$  and  $10^8$ .

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	Output	Explanation
8 -2 3 -2 -1 0 3 0 -1 1 -1 2 1 -3 1 -2 1	10	

### Constraints

$4 \leq n \leq 1,500$ .

### Grading

For test cases worth 20% of the total score,  $n \leq 500$ .