

## 6489 Triangles

Given  $n$  points in a plane, find the triangles with the smallest and largest areas formed by any three of the points.

### Input

There will be several test cases in the input. Each test case will begin with an integer  $n$  ( $3 \leq n \leq 2,000$ ) on its own line, indicating the number of points. On each of the next  $n$  lines will be two integers  $x$  and  $y$  ( $-10,000 \leq x, y \leq 10,000$ ), representing a point. No test case will contain duplicate points. The input will end with a '0' on its own line.

### Output

For each case, output the areas of the smallest, then largest, triangles formed by any 3 of the points in the test case. Output these numbers with exactly one decimal place of accuracy, with exactly one space between them. Output no extra spaces, and do not separate answers with blank lines.

### Sample Input

```
4
-5 -5
-4 3
4 1
3 -2
7
1 0
2 0
0 2
2 3
0 1
3 0
0 3
0
```

### Sample Output

```
10.5 33.0
0.0 4.0
```