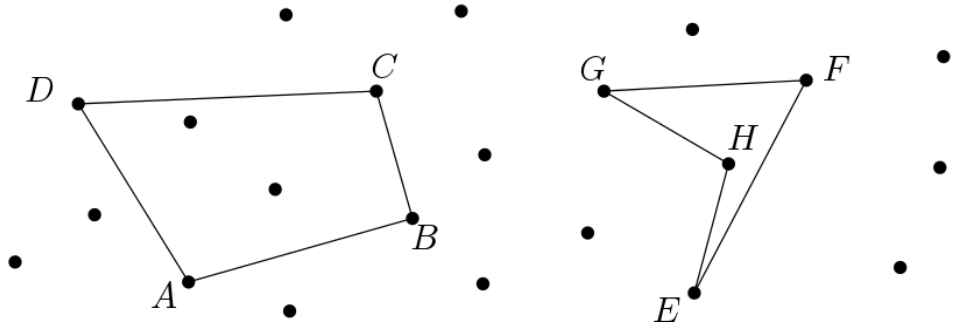
Convex Quadrilateral

Given N points in the plane, any four points among them form a quadrilateral. Of those quadrilaterals made in this way, some are convex while some are not.



For examples, suppose that the N points are given as the above figure. If you choose four points A, B, C, and D, then you get a convex quadrilateral, while if you choose E, F, G, and H, then you will never find any convex quadrilateral from these four points. Note that a convex quadrilateral is a quadrilateral whose four internal angles are all less than 180 degrees.

The problem is: What is the convex quadrilateral of smallest area among those made in this way?

In this problem, your problem is given N points as pairs of coordinates, and is then to calculate the smallest possible area of convex quadrilaterals whose vertices are from the N input points.

[Input]

In the first line of the input file is given the number T ($T \leq 45$) of test cases in the file. The first line of a test case is given the number N ($5 \leq N \leq 200$) of points. In each of the next N lines, two integers that are inclusively between −10,000 and 10,000 are given, which represent the coordinates of one of the N points. Note that no two input points have the same pair of coordinates, and three or more input points may lie on a common line.

The inputs are given in 2 sets as follows:

- Set 1: $5 \leq N \leq 20$
- Set 2: $5 \leq N \leq 200$

[Output]
For each test case, compute the smallest possible area of convex quadrilaterals whose vertices are from the N input points, and print it as a decimal number after rounding it off to the nearest tenth. Note that your output must contain one decimal place.

[I/O Example]
Input

```
2
5
```

```
1 0
-1 1
0 0
1 1
-1 -1
5
-1 2
-1 -1
1 -3
0 1
1 3
```

Output

```
1.5
4.5
```