# Land

Problem Statement

Vangelis the bear bought a real property inside a forest where he wants to build his new corporate headquarters. The shape of the land is a strictly convex polygon. This means that the shape is a polygon with all its interior angles less than 180°. All vertices of the shape are on a plane, whose locations are given in a Cartesian coordinate system.

In the plot, there are some really old trees that Vangelis wants to protect. To do so, Vangelis decided that he will separate his land into two parts. The first part, where there must not be any trees, will be used for the headquarters building. The second part, where the ancient trees reside, will be preserved as a park.

Being a scientist, he decided to make the separation using a diagonal of the polygon. Your task is to help Vangelis compute the maximum possible land that he can use to build his headquarters.

Note: A tree cannot appear on the border between the regions. Thus, in the image below, the maximum area for the headquarters *is not equal* to one half the area of the land.
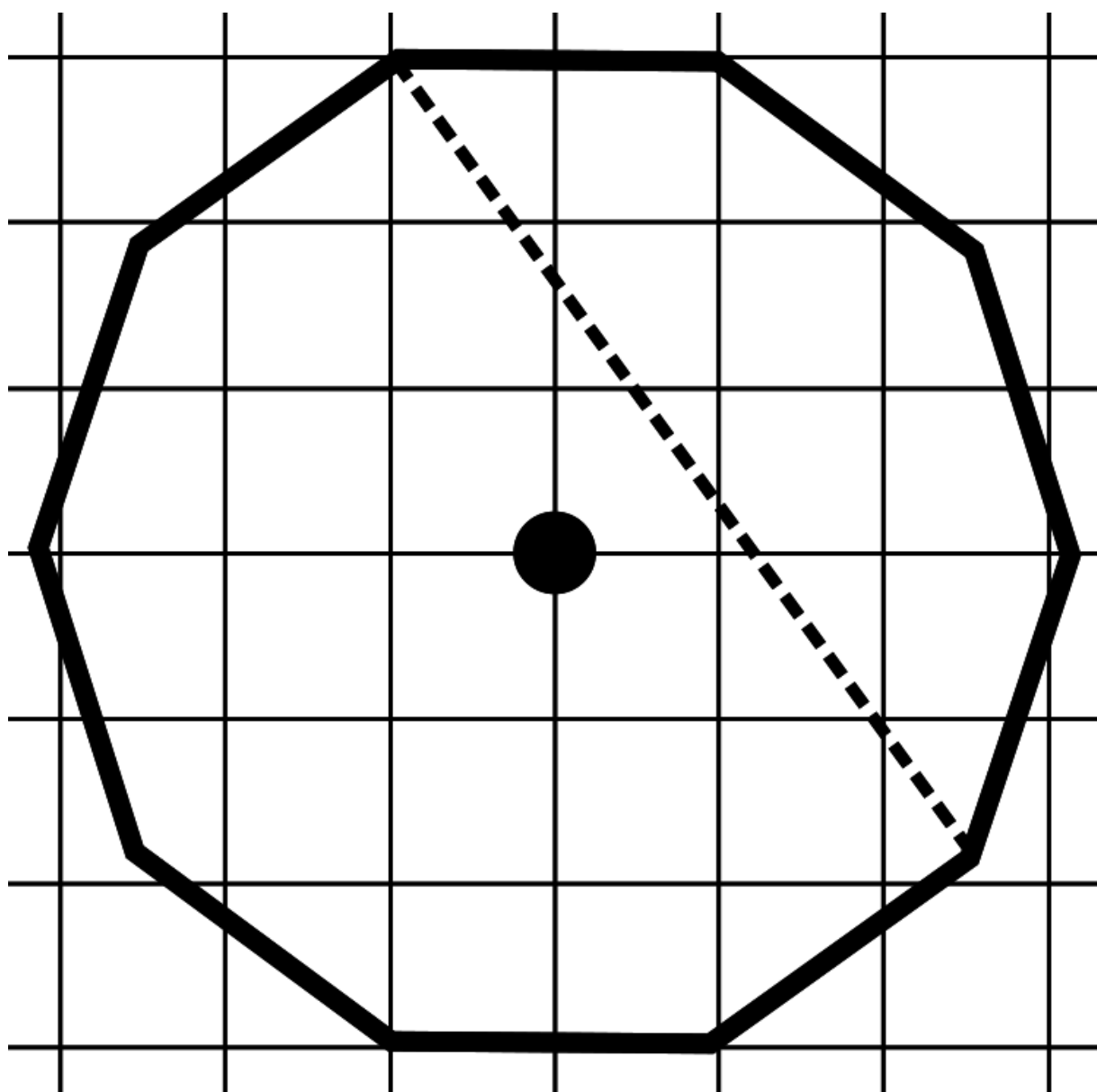
Input Format

The input is made up of multiple test cases.

The first line contains an integer T (1 <= T <= 10), the number of test cases in this file.

The following repeats *T* times:

- The first line in the test case contains an integer N (4 <= N <= 300000), the number of vertices that compose the land shape.

- Each of the following N lines contain two single-space-separated integers X and Y (-10^9 <= X, Y <= 10^9), the coordinates of a vertex. The vertices are given in a counter-clockwise order going around the boundary of the land.

- The line after contains an integer M (0 <= M <= 300000), the number of trees inside the land.

- Each of the following M lines contain two single-space-separated integers I and J, the coordinates of a tree inside the land. None of the trees will be placed on an edge of the land.

Output Format

There must be *T* lines of output and each will contain a single non-negative real number, the maximum possible area that can be used for the headquarters in the specific test case. The numbers should always be rounded to two decimal places, and they should always display these two decimal places even if the final value is an integer. In the cases that there is no available land to be used, your program should write 0.00.
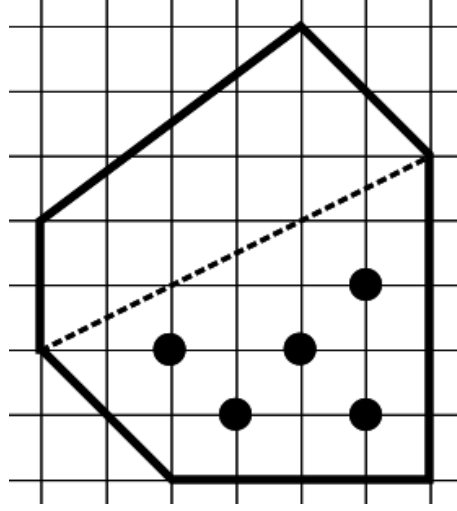
Sample Input

```
1
6
2 0
6 0
6 5
4 7
0 4
0 2
5
2 2
3 1
4 2
5 1
5 3
```

Sample Output

```
13.00
```

Explanation

The image below represents the optimal division of the land resulting in clear space for headquarters of 13 m^2.

Note: An additional test case is available if you click on the "Run Code" button.