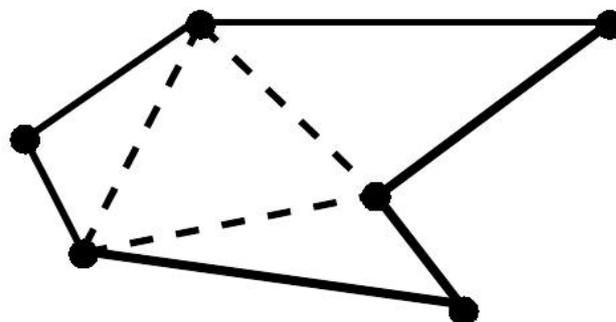


4458 Compact Triangulation

A simple polygon of size M , $3 \leq M$, is a planar piecewise-linear closed curve of M distinct vertices that does not intersect itself. A chord is a line segment between two non-adjacent vertices of the polygon that lies entirely inside the polygon. In other words, the endpoints of the chord are the only points of the chord that touch the boundary of the polygon. A triangulation of the polygon is any choice of $M - 3$ chords, such that the polygon is divided into triangles. In a triangulation, no two of the chosen chords intersect each other, except at endpoints.

Constructing an arbitrary triangulation is fairly easy, but what is needed is to construct a triangulation whose largest area triangle is the smallest amongst all possible triangulations of a given simple polygon. Your task is to write a program to identify such a triangulation and produce the area of its largest triangle.



An example of a simple polygon (border shown by solid line) and one possible triangulation (with chords shown by dashed lines)

Input

The input consists of a series of triangulation requests with the first line being a single positive integer N , $0 < N \leq 20$, that represents the number of polygons to follow. The description of each simple polygon starts with a line containing one positive integer M , $2 \leq M \leq 49$, which represents the number of vertices of the polygon. Each of the following M lines contains a vertex of the polygon in order of their appearance along the border, going clockwise or counterclockwise, starting at an arbitrary vertex. Each vertex is described by a pair of integers x and y , $0 \leq x \leq 10000$ and $0 \leq y \leq 10000$, which represent its x - and y -coordinates.

Output

For each polygon, output one line that contains the area of the largest triangle in the identified triangulation. The area should be presented with one fractional decimal digit, using standard rounding rules.

For example, $9.0x$ is truncated to 9.0 for all values of “ x ” in the range of one (1) to four (4), and $9.0y$ is rounded up to 9.1 for all values of “ y ” in the range of five (5) to nine (9).

Sample Input

```

1
6
7 0
6 2
9 5
3 5
0 3
  
```

1 1

Sample Output

9.0