# 11066   Aragorn

This problem takes you back in time to Middle Earth, shortly before Sauron gets overturned. Here your task is to help Aragorn, also known as Strider, to succesfully lead an army of elves over the Misty Mountains. Unfortunately the weather, which has been fair for the last few days, has turned nasty. To cross the Misty Moutains the army must reach the pass of doom. This wouldn't be a problem if the skies were clear, but today it is very cloudy. Therefore an army of orcs may be hiding in the clouds. As the chief counselor of Aragorn your task is to help decide, if it is safe to lead the army to the pass. This depends on how much of the mountains is covered with clouds.

Input

The input consists of several testcases. In each testcase you will be given a description of the clouds and a description of the mountains. Both will be given as a series of connected line segments, the first series of line segments describing the clouds, the second the mountains. Everything "above" the first series of line segments is covered with clouds. Everything "below" the second series of line segments belongs to the silhouette of the mountains, as shown in the following picture.

The series of line segments describing the clouds and the moutains will be given as series of points. Two neighbouring points form a line segment. Each point consists of a x-coordinate and y-coordinate. The first number in each test case is an integer c, $c \leq 1000$, denoting the number of points describing the clouds, followed by c pairs of floating point numbers, each describing a point. The next number is an integer m, $m \leq 1000$, denoting the number of points in the silhouette of the mountains, followed by m pairs of floating point numbers, each describing a point. Each sequence of line segments will begin at $(0, y)$ and end at the same x-coordinate as the other sequence. The x-coordinates of the points will grow steadily. Each y-coordinate will be greater than or equal to zero. You should parse until $c = 0$.
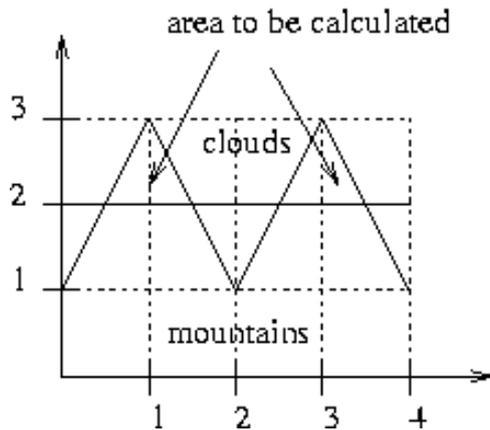
Output

You are to calculate how big an area of the mountains is covered by the clouds. Ouput the area covered by the clouds. The number should contain two digits after the decimal point. Be careful about precision error when the output is zero. Never print '-0.00' instead of '0.00'.

Sample Input

```
2
0.0 3.0
4.0 3.0
5
0.0 1.0
1.0 3.0
2.0 1.0
3.0 3.0
```

```
4.0 1.0

2
0.0 2.0
4.0 2.0
5
0.0 1.0
1.0 3.0
2.0 1.0
3.0 3.0
4.0 1.0

2
0.0 0.0
4.0 0.0
5
0.0 1.0
1.0 3.0
2.0 1.0
3.0 3.0
4.0 1.0

2
0.0 0.0
4.0 0.0
5
0.0 1.0
1.0 3.0
2.0 1.0
3.0 3.0
4.0 1.0

5
0.0 1.0
1.0 3.0
2.0 1.0
3.0 3.0
4.0 1.0
3
0.0 2.0
2.0 1.0
4.0 2.0

3
0.0 2.0
2.0 1.0
4.0 2.0
5
0.0 1.0
1.0 3.0
```

```
2.0 1.0
3.0 3.0
4.0 1.0

0
```

Sample Output

```
0.00
1.00
8.00
8.00
0.40
2.40
```