Ancient Maps, Hidden Danger

Input file:	`standard input`
Output file:	`standard output`
Time limit:	5 seconds
Memory limit:	1024 megabytes

Behold, adventurer! Tread not the abyss without scrutiny.

Legend has it that there will always be a minotaur in a labyrinth. But what defines a labyrinth? Numerous grievous incidents have occurred, and the great warrior Alan decided to take matters into his own hands.

Being one of the most prestigious fighters in the town, one day, he came out with some conjectures based on his previous experiences. When you were only allowed to stay outside the structure, the area where the eyes could not see might be the actual source of danger. He rallied his friends at the bar to discuss this new thought. After that, they came to the conclusion of how to scientifically measure this property.

Picture a 2D map of a structure in your head. The structure consists of multiple walls, which can be described by polygons. These walls block movements and view. That is, you cannot walk, nor see through the wall. There are no holes in the walls (Alan is a warrior; not a mage), and therefore, a point is reachable from outside if it is not in a wall. The main insight of the discussion was, that if some reachable spot is visible outside the structure, then for any distance, it should be visible at some place with that distance to the spot for some angle. Mathematically speaking, for any radius r, we can pick a point on the circle centered at the spot, such that the segment between the point and the spot does not intersect with any wall. Any points that are not visible outside are said to be *hidden*, and they are interested in the reachable but hidden area.

Figure A.1: The labyrinth map of the Sample Input 1. The walls are shaded in brown, and the reachable but hidden area is shaded in grey.

Later that night, the folks stared at the maps perplexed, with no progress at all. None of them had a good method to measure the area other than going to the actual place. Certainly, it was too risky and impractical as Alan could not guard all the fellows at the same time. Perhaps you can help? Help them find the hidden reachable area of the map to verify their conjecture.

Input

The first line contains a number n ($1 \leq n \leq 30$), which is the number of the polygons describing the walls in the structure. Each of the following n lines contains several integers. The first number of each line is the number of vertices k_i ($3 \leq k_i \leq 90$) of the i-th polygon. Following this number, there are $2k_i$ integers, $x_1, y_1, x_2, y_2 \ldots, x_{k_i}, y_{k_i}$ ($-10^4 \leq x_j, y_j \leq 10^4$), which are the coordinates of the vertices of the polygon, in the clockwise or counterclockwise order. There will not be duplicated vertices in the input. The given polygons are simple, i.e. they have no hole and never intersect with themselves. Two polygons will not overlap at any point. The total number of vertices will not exceed 90.

Output

Output a floating point number indicating the reachable hidden area in the map. Your answer should

have an absolute or relative error of at most 10^{-6}.

Examples

standard input	standard output
2 8 0 0 7 0 7 7 6 7 6 1 1 1 1 7 0 7 4 2 7 5 7 5 6 2 6	2.25
2 4 2 4 5 8 9 4 5 7 4 4 5 5 1 6 5 5 4	1.4