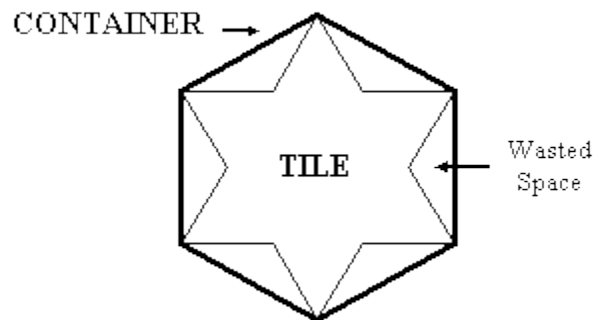


A

Useless Tile Packers

Yes, as you have apprehended the *Useless Tile Packers* (UTP) pack tiles. The tiles are of uniform thickness and have simple polygonal shape. For each tile a container is custom-built. The floor of the container is a convex polygon and under this constraint it has the minimum possible space inside to hold the tile it is built for. But this strategy leads to wasted space inside the container.



The UTP authorities are interested to know the percentage of wasted space for a given tile.

Input

The input file consists of several data blocks. Each data block describes one tile.

The first line of a data block contains an integer N ($3 \leq N \leq 100$) indicating the number of corner points of the tile. Each of the next N lines contains two integers giving the (x, y) coordinates of a corner point (determined using a suitable origin and orientation of the axes) where $0 \leq x, y \leq 1000$. Starting from the first point given in the input the corner points occur in the same order on the boundary of the tile as they appear in the input.

No three consecutive points are co-linear. Points given in input are arranged in anti-clockwise direction.

The input file terminates with a value of 0 for N .

Output

For each tile in the input output the percentage of wasted space rounded to two digits after the decimal point. Each output must be on a separate line. Print a blank line **after each** output block.

Sample Input

Output for Sample Input

5 0 0 2 0 2 2 1 1 0 2 5 2 0 2 2 1 3 0 2 0 0	Tile #1 Wasted Space = 25.00 % Tile #2 Wasted Space = 0.00 %
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Source: uva problem

Hints:

1. you can use: `printf("Wasted Space = %.2lf %%\n\n" , answer);`

2. if vertices of a polygon are in clockwise/anti-clockwise direction, the area of that polygon = $0.5 * (\text{sum the cross products around each vertex})$