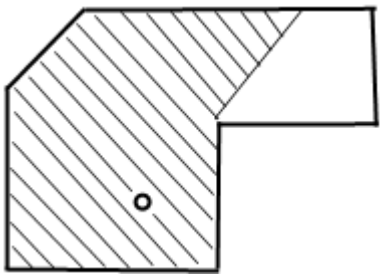
Problem L. Light Source

Input file:	*standard input*
Output file:	*standard output*
Time limit:	4 seconds
Memory limit:	256 mebibytes

In the room, shaped as the simple polygon with N vertices (i.e. closed polyline without self-intersections), an light source is put in the point (X_c, Y_c). Find out an area of illuminated part of the room.



Input

First line of the input file contains one integer T — number of the test cases ($1 \le T < 20$). First line of each test case contains two real numbers X_c and Y_c — coordinates of the light source. Next line contains one integer N — number of vertices of the polyline ($3 \le N \le 5 \cdot 10^4$). Each of the next N lines contain coordinate of one vertices of the polyline — two real numbers X_i and Y_i. All coordinates are given with no more than 4 digits after the decimal point and does not exceed 1000 by absolute value. It is guaranteed that light source is strictly inside the room. Coordinates of the points are given in counterclockwise order.

Output

For each test case print one integer — area of illuminated part of the room with absolute error 10^{-2} or better.

Examples

standard input	standard output
1 1 2 5 0 0 1 0 1 1 3 3 0 3	5.00