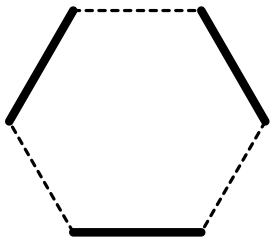
Hexagonal Billiards

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	256 megabytes



Consider a regular hexagon with its center at the origin $(0, 0)$ and one of its vertices at $(1, 0)$. In this hexagon, the topmost, bottom-left, and bottom-right edges have been removed, while the remaining edges are firmly fixed in their places.

You place a ball somewhere inside the hexagon, and then it starts to move with a constant speed in a uniformly distributed random direction. Each time the ball collides with one of the hexagon's edges, the collision is absolutely elastic, meaning the angle of incidence is equal to the angle of reflection, and the speed remains the same

Your task is to determine the probability of the ball leaving the hexagon after exactly N collisions.

Input

The input consists of a single line containing an integer N ($0 \le N \le 100$), followed by two real numbers x and y ($-1 < x, y < 1$) with at most two digits after the decimal point. These coordinates (x, y) represent the starting position of the ball inside the hexagon. It is guaranteed that the ball is initially located strictly inside the hexagon, with a minimum distance of 10^{-5} from each of the six initial sides of the hexagon.

Output

Output a single real number, representing the required probability, with an absolute error not exceeding 10^{-6}.

Examples

standard input	standard output
2 0.00 0.00	0.086811985
1 0.20 -0.30	0.231860631