Problem F
Fabulous Activity

Alob and Bice were good friend for years, and they eventually got into a relationship! Today is February 14th — the Valentine's day. To celebrate this day with full of romance, the lovely couple decided to spend the whole day on... a game of points.

At the beginning of the game, the two persons choose five positive integers n, x_0, y_0, a and b. Then, they draw $n + 1$ points on the paper, denoted as $P_0, P_1, \ldots, P_n$. Let's consider the paper a Cartesian plane, the coordinates of these points are $P_0 = (x_0, y_0)$, $P_1 = (x_0 + a, y_0 + b)$, $P_2 = (x_0 + 2 \cdot a, y_0 + 2 \cdot b)$, ..., $P_n = (x_0 + n \cdot a, y_0 + n \cdot b)$. In other words, for every i such that $0 \leq i \leq n$, $P_i = (x_0 + i \cdot a, y_0 + i \cdot b)$.

The rules of the game are as below:

- Two players take turns alternatively, with Alob starts first.
- In each turn, a player chooses two points P_i and P_j $(0 \leq i < j \leq n)$ and draw the segment P_iP_j.
- After every turn, this condition must hold: No two drawn segments intersect, even at their ends. In other words, every point on the plane lies on at most one segment.

After reading this, one may think that the person who can not make a valid move is considered the loser of the game. But no! They are in love, so they hate fighting against the other. Instead, they cooperate together and try to make as many distinct drawings as possible!

Formally, a drawing is a possibly-empty set of segments in which all segments' ends are among the $n + 1$ points $P_0, P_1, \ldots, P_n$, satisfying that no two segments intersect. Having intersections at segments' ends is not allowed. The *covered distance* of a drawing is the total length of all its segments. Two drawings are considered different iff there exists a segment P_iP_j which appears in one drawing, but does not appear in the other. Note that a drawing with 0 segments is always considered valid.

The couple would like to know the *average covered distance* of all drawings, which can be calculated as the total *covered distance* among all valid drawings divided by the number of valid drawings.

Could you help them?

Recall that the length of segment AB equals to the Euclidean distance between the two ends A and B, which can be calculated as $\sqrt{(x_A - x_B)^2 + (y_A - y_B)^2}$, where (x_A, y_A) and (x_B, y_B) denote the coordinates of two points A and B, respectively.

Input

The only line of the input contains five integers n, x_0, y_0, a and b. All numbers are between 1 and 100000, inclusive.

Output

Print one number denoting the *average covered distance* of all drawings. Your answer is considered correct if its absolute or relative error does not exceed 10^{-6}.

Formally, let your answer be a, and the jury's answer be b. Your answer is accepted if and only if $\frac{|a-b|}{\max(1,|b|)} \leq 10^{-6}$.

Explanation of the sample

In the above sample, there are 5 points on the plane: $P_0 = (2, 2)$, $P_1 = (3, 3)$, $P_2 = (4, 4)$, $P_3 = (5, 5)$ and $P_4 = (6, 6)$.

All valid drawings are listed below:

- 1 drawing with 0 segments (the *covered distance* is 0).
- 4 drawings with 1 segment of length $\sqrt{2}$ (the drawings with exactly one of the following segments: P_0P_1, P_1P_2, P_2P_3, P_3P_4).
- 3 drawings with 1 segment of length $\sqrt{8}$ (the drawings with exactly one of the following segemnts: P_0P_2, P_1P_3, P_2P_4).
- 2 drawings with 1 segment of length $\sqrt{18}$ (the drawings with exactly one of the following segments: P_0P_3, P_1P_4).
- 1 drawing with 1 segment of length $\sqrt{32}$ (the segment P_0P_4).
- 3 drawings with 2 segments of length $\sqrt{2}$ (their sets of segments are $\{P_0P_1, P_2P_3\}$, $\{P_0P_1, P_3P_4\}$ and $\{P_1P_2, P_3P_4\}$). The *covered distance* of each drawing is $\sqrt{2} + \sqrt{2}$.
- 2 drawings with 1 segment of length $\sqrt{2}$ and 1 segment of length $\sqrt{8}$ (their sets of segments are $\{P_0P_1, P_2P_4\}$ and $\{P_0P_2, P_3P_4\}$). The *covered distance* of each drawing is $\sqrt{2} + \sqrt{8}$.

Therefore, the *average covered distance* is: $\frac{1 \cdot 0 + 4 \cdot \sqrt{2} + 3 \cdot \sqrt{8} + 2 \cdot \sqrt{18} + 1 \cdot \sqrt{32} + 3 \cdot (\sqrt{2} + \sqrt{2}) + 2 \cdot (\sqrt{2} + \sqrt{8})}{1+4+3+2+1+3+2} \approx 2.82842712$.

Sample Input 1	Sample Output 1
`4 2 2 1 1`	`2.82842712`