Robot

There is a robot on the 2D plane. Robot initially standing on the position (0, 0). Robot can make a 4 different moves:

1. Up (from (x, y) to (x, y + 1)) with probability **U**.
2. Right (from (x, y) to (x + 1, y)) with probability **R**.
3. Down (from (x, y) to (x, y - 1)) with probability **D**.
4. Left (from (x, y) to (x - 1, y)) with probability **L**.

After moving **N** times Robot gets points.

- Let x_1 be the smallest coordinate in X-axis, that Robot reached in some moment.
- Let x_2 be the largest coordinate in X-axis, that Robot reached in some moment.
- Let y_1 be the smallest coordinate in Y-axis, that Robot reached in some moment.
- Let y_2 be the largest coordinate in Y-axis, that Robot reached in some moment.

Points achieved by Robot equals to $x_2 - x_1 + y_2 - y_1$.

Given **N, U, R, D, L**. Calculate expected value of points that Robot achieved after **N** moves.

Input

First line: One interger **N (1 ≤ N ≤ 200)**.

Second line: Four real numbers **U, R, D, L (U + R + D + L = 1, 0 ≤ U, R, D, L ≤ 1**) with maximum of 6 numbers after dot.

Output

One number: expected value of points achieved by Robot. The answer will be considered correct if its relative or absolute error does not exceed 10^{-6}.

Example 1

Input:
2
0.100000 0.200000 0.300000 0.400000
Output:
1.780000

Example 2

Input:
3
0.25 0.25 0.25 0.25
Output:
2.375000