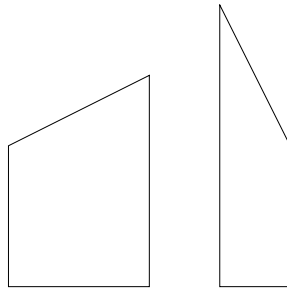


CCC '21 S1 - Crazy Fencing

Time limit: 1.0s Memory limit: 1G

Canadian Computing Competition: 2021 Stage 1, Senior #1

You need to paint a wooden fence between your house and your neighbour's house. You want to determine the area of the fence, in order to determine how much paint you will use. However, the fence is made out of N non-uniform pieces of wood, and your neighbour believes that they have an artistic flair. In particular, the pieces of wood may be of various widths. The bottom of each piece of wood will be horizontal, both sides will be vertical, but its top may be cut on an angle. Two such pieces of wood are shown below:



Thankfully, the fence has been constructed so that adjacent pieces of wood have the same height on the sides where they touch, which makes the fence more visually appealing.

Input Specification

The first line of the input will be a positive integer N , where $N \leq 10\,000$.

The second line of input will contain $N + 1$ space-separated integers h_1, \dots, h_{N+1} ($1 \leq h_i \leq 100, 1 \leq i \leq N + 1$) describing the left and right heights of each piece of wood. Specifically, the left height of the i^{th} piece of wood is h_i and the right height of the i^{th} piece of wood is h_{i+1} .

The third line of input will contain N space-separated integers w_i ($1 \leq w_i \leq 100, 1 \leq i \leq N$) describing the width of the i^{th} piece of wood.

Output Specification

Output the total area of the fence. If the correct answer is C , the grader will view A correct if $|A - C| \leq 10^{-6}$.

Sample Input 1

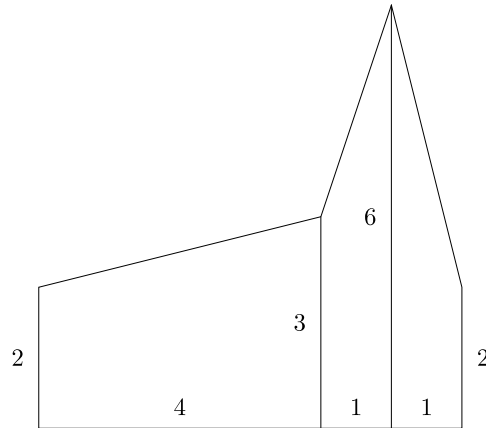
```
3
2 3 6 2
4 1 1
```

Output for Sample Input 1

18.5

Explanation of Output for Sample Input 1

The fence looks like the following:



When looking from left to right, the individual areas of the pieces of wood are $10 = 4 \cdot (2 + 3)/2$, $4.5 = 1 \cdot (3 + 6)/2$, and $4 = 1 \cdot (6 + 2)/2$, for a total area of 18.5.

Sample Input 2

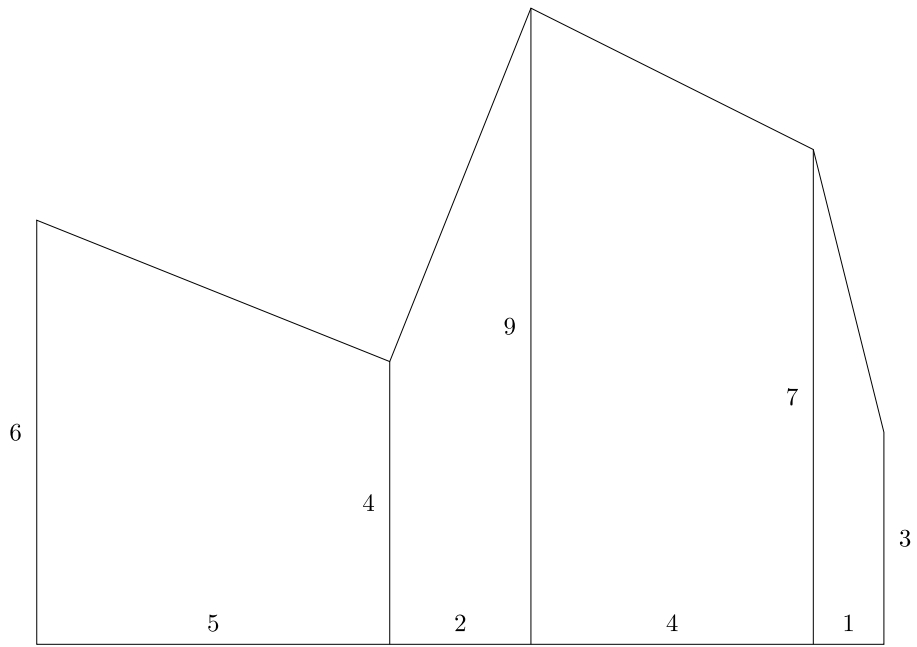
4
6 4 9 7 3
5 2 4 1

Output for Sample Input 2

75

Explanation of Output for Sample Input 2

The fence looks like the following:



When looking from left to right, the individual areas of the pieces of wood are 25, 13, 32, and 5, for a total area of 75.