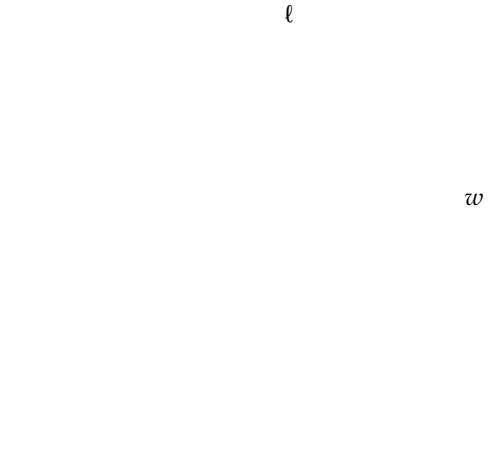
On the beach P94819_en

You have been sunbathing on a sand beach, and now you want to take a bath. You touch the sand, but it burns! How can you minimize the total pain to reach the sea?

Assume a two-dimensional world. The beach has length ℓ and width w. Where $y \leq 0$, there is sea. Where $0 < x < \ell$ and $0 < y < w$, there is sand. The rest is covered by grass. You are at a position (a, b) strictly inside the beach. Walking a unit on the sand causes pain s. Walking a unit on the grass causes pain g, with $g < s$.



To the right we see an example with $\ell = w = 30$, $a = 12$ and $b = 20$. The black dot shows the origin $(0, 0)$. The red dot shows your position. If $s = 3$ and $g = 2$, the best path (in blue) goes straight into the sea. If $s = 13$ and $g = 5$, the best path (in pink) goes first straight on the sand to the point $(0, 15)$, and then straight on the grass into the sea.

Given ℓ, w, a, b, s and g, can you minimize the pain to reach the sea?

Input

Input consists of several cases, each with ℓ, w, a, b, s and g. They are strictly positive real numbers with at most three digits after the decimal point. Assume $a < \ell$, $b < w$, and $g < s$.

Output

For every case, print the minimum total pain to reach the sea with three digits after the decimal point. The input cases have no precision issues.

Sample input 1

```
30 30 12 20 3 2
30 30 12 20 13 5
25.5 12.1 23.6 4.7 18.4 5.3
```

Sample output 1

```
60.000
244.000
58.388
```

Problem information

Author: Salvador Roura

Generation: 2026-01-25T12:06:48.967Z

© *Jutge.org*, 2006–2026.
https://jutge.org