Goat Rope

You have a fence post located at (***x***, ***y***) and a goat. You also have a house, which you model as an axis-aligned rectangle with opposite corners at (***x1***, ***y1***) and (***x2***, ***y2***). You want to give the goat as much room to roam as possible, but you don't want the goat to be able to touch the house. As a guide to how much rope you should buy, determine the minimum distance from the post to your house.

Input

Each input will consist of a single test case. Note that your program may be run multiple times on different inputs.

Each test case will consist of a single line containing six space-separated integers, all in the same units:

x y x1 y1 y2 y2

Where (***x***, ***y***) is the location of the post, and (***x1***, ***y1***) and (***x2***, ***y2***) are opposite corners of the house. The following are guaranteed:

- All values are between -1,000 and 1,000 inclusive.
- ***x1***<***x2*** and ***y1***<***y2***
- The post is not inside the house or on the border.
    - At least one of these is true: ***x***<***x1*** or ***x***>***x2*** or ***y***<***y1*** or ***y***>***y2***

Output

Output a single real number, which is the minimum distance from the post to your house (in the same units as the inputs). Output this number rounded to exactly 3 decimal places.

Sample Input	**Sample Output**
7 4 0 0 5 4	2.000
6 0 0 2 7 6	2.000
4 8 7 8 9 9	3.000