Czech ACM Student Chapter
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CTU Open Contest 2026

Accident

`accident.(c|cpp|py)`, `Accident.(java|kt)`

Míša was walking home from school when he tripped on the pavement and dropped his right-angled triangle on the ground. The fall damaged the triangle, and it may no longer be right-angled. Now he wants to fix it with minimal effort — by moving just one of its vertices so that it becomes right-angled again.

Help Míša decide the minimum distance he needs to move one of the vertices, so the triangle becomes right-angled again. It is guaranteed that the input points are not collinear (i.e., they do not lie on a single line) and no two points are the same.

Input Specification

The input consists of three lines, each describing one vertex of the triangle. Each line contains two space-separated integers x and y ($-100 \leq x, y \leq 100$), the coordinates of a point.

Output Specification

Output a decimal number, the minimum distance that one of the points needs to be moved so that this point and the other two points form the vertices of a right-angled triangle.

Your answer will be considered correct if its absolute error does not exceed 10^{-5}.

Sample Input 1

```
4 0
0 4
-1 -1
```

Output for Sample Input 1

```
1.414213562
```

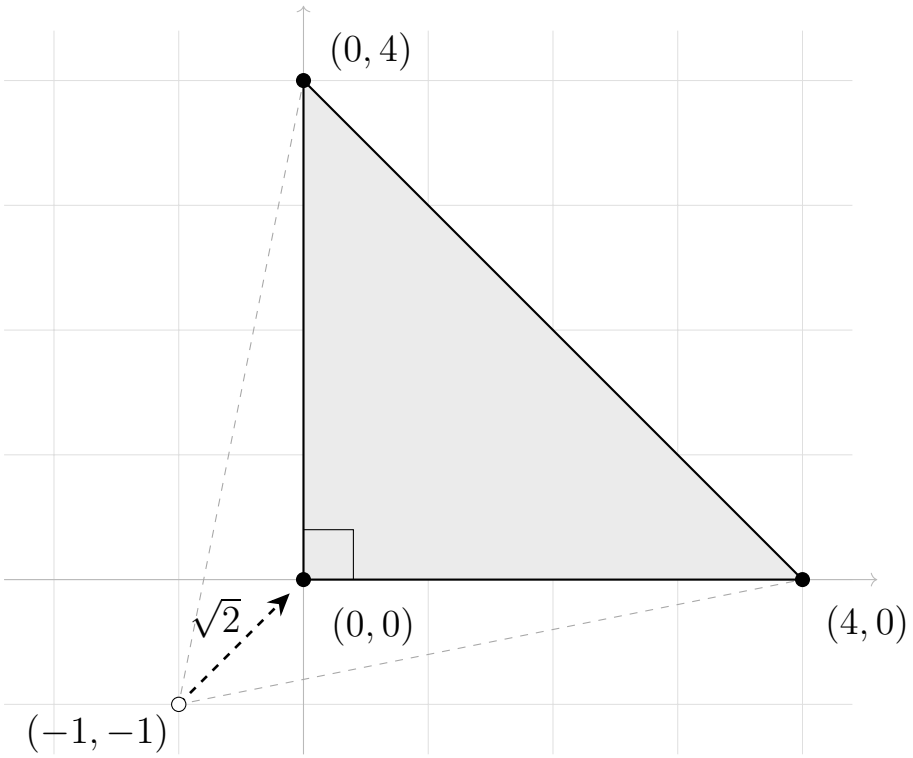
Sample Input 2

```
10 13
14 -4
-42 31
```

Output for Sample Input 2

```
9.013726194
```

In the first sample the cheapest fix is to slide the point $(-1, -1)$ by $\sqrt{2} \approx 1.41421$ towards the origin, where it forms a right angle with $(4, 0)$ and $(0, 4)$.



Sample Input 1