

Smallest distance

Given the coordinates of the vertices of the triangle, the coordinates of the point D lying inside the triangle, you need to find and derive the smallest of the distances from the point D to any side of the triangle.

Input

From a standard input device, the coordinates of four points are entered through a space:

$A_x, A_y, B_x, B_y, C_x, C_y, D_x, D_y,$

where the points A, B, C are the vertices of the triangle. The coordinates of all points are real from the range from -1000 to 1000, given with three decimal places.

Output

It is required to derive the smallest of the distances from point D to one of the sides of the triangle with an accuracy of 4 decimal places.

There is no need to display a space at the end.

Sample Input

-2.0000 0.0000 0.0000 2.0000 2.0000 0.0000 0.0000 1.0000

Sample Output

0.7071

Note

Use the qualifier “%f” to input and output real numbers.

The area of the triangle by the coordinates of its vertices can be found as follows:

$$S = |(B_x - A_x) * (A_y + B_y) + (C_x - B_x) * (C_y + B_y) + (A_x - C_x) * (A_y + C_y)| / 2.$$

Try to implement the *getArea()* function, which takes the coordinates of the three vertices of a triangle and returns its area.