

Problem D. 3 points

Input file: `stdin`
Output file: `stdout`
Time limit: 1 second
Memory limit: 512 megabytes

bobo has 3 points, namely, point A , B and C . And now he wants to find a point P to minimize $|PA| + 2 \cdot |PB| + 3 \cdot |PC|$.

Note that $|AB|$ denotes the Euclidian distance between points A and B .

Input

Each of the 3 lines contains 2 integers x_i, y_i , which denotes the coordinates of point A, B, C , respectively ($|x_i|, |y_i| \leq 10000$).

Output

A single float number denotes the minimum of total distance. Absolutely or relatively error within 10^{-6} will get accepted.

Sample input and output

stdin	stdout
0 0 0 0 1 0	3.000000000