A. Pashmak and Garden

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

Pashmak has fallen in love with an attractive girl called Parmida since one year ago...

Today, Pashmak set up a meeting with his partner in a romantic garden. Unfortunately, Pashmak has forgotten where the garden is. But he remembers that the garden looks like a square with sides parallel to the coordinate axes. He also remembers that there is exactly one tree on each vertex of the square. Now, Pashmak knows the position of only two of the trees. Help him to find the position of two remaining ones.

Input

The first line contains four space-separated x_1, y_1, x_2, y_2 ($-100 \le x_1, y_1, x_2, y_2 \le 100$) integers, where x_1 and y_1 are coordinates of the first tree and x_2 and y_2 are coordinates of the second tree. It's guaranteed that the given points are distinct.

Output

If there is no solution to the problem, print -1. Otherwise print four space-separated integers x_3, y_3, x_4, y_4 that correspond to the coordinates of the two other trees. If there are several solutions you can output any of them.

Note that x_3, y_3, x_4, y_4 must be in the range ($-1000 \le x_3, y_3, x_4, y_4 \le 1000$).

Examples

input
0 0 0 1
output
1 0 1 1

input
0 0 1 1
output
0 1 1 0

input
0 0 1 2
output
-1

Codeforces Round #261 (Div. 2)
Finished

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Problem tags

implementation

No tag edit access

→ Contest materials

- Announcement
- Tutorial