

Please read [the new rule regarding the restriction on the use of AI tools](#).[PROBLEMS](#) [SUBMIT](#) [STATUS](#) [STANDINGS](#) [CUSTOM TEST](#)

A. Walking Master

time limit per test: 1 second

memory limit per test: 1024 megabytes

YunQian is standing on an infinite plane with the Cartesian coordinate system on it. In one move, she can move to the diagonally adjacent point on the top right or the adjacent point on the left.

That is, if she is standing on point (x, y) , she can either move to point $(x + 1, y + 1)$ or point $(x - 1, y)$.

YunQian initially stands at point (a, b) and wants to move to point (c, d) . Find the minimum number of moves she needs to make or declare that it is impossible.

Input

The first line contains a single integer t ($1 \leq t \leq 10^4$) — the number of test cases. The description of test cases follows.

The first line and only line of each test case contain four integers a, b, c, d ($-10^8 \leq a, b, c, d \leq 10^8$).

Output

For each test case, if it is possible to move from point (a, b) to point (c, d) , output the minimum number of moves. Otherwise, output -1 .

Example

input	Copy
6 -1 0 -1 2 0 0 4 5 -2 -1 1 1 -3 2 -3 2 2 -1 -1 -1 1 1 0 2	
output	Copy
4 6 -1 0 3 3	

Note

In the first test case, one possible way using 4 moves is $(-1, 0) \rightarrow (0, 1) \rightarrow (-1, 1) \rightarrow (0, 2) \rightarrow (-1, 2)$. It can be proven that it is impossible to move from point $(-1, 0)$ to point $(-1, 2)$ in less than 4 moves.

Codeforces Round 858 (Div. 2)

Finished

Practice



→ 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 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](#)

→ Clone Contest to Mashup

You can clone this contest to a mashup.

[Clone Contest](#)

→ Submit?

Language: [GNU G++20 13.2 \(64 bit, w](#)Choose file: [Choose File](#) No file chosen[Submit](#)

→ Problem tags

[geometry](#) [greedy](#) [math](#) [*800](#)

No tag edit access

→ Contest materials

- [Announcement \(en\)](#)
- [Tutorial \(en\)](#)



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