

C. Four Segments

time limit per test: 2 seconds
 memory limit per test: 64 megabytes

Several months later Alex finally got his brother Bob's creation by post. And now, in his turn, Alex wants to boast about something to his brother. He thought for a while, and came to the conclusion that he has no ready creations, and decided to write a program for rectangles detection. According to his plan, the program detects if the four given segments form a rectangle of a positive area and with sides parallel to coordinate axes. As Alex does badly at school and can't write this program by himself, he asks you to help him.

Input

The input data contain four lines. Each of these lines contains four integers x_1, y_1, x_2, y_2 ($-10^9 \leq x_1, y_1, x_2, y_2 \leq 10^9$) — coordinates of segment's beginning and end positions. The given segments can degenerate into points.

Output

Output the word «YES», if the given four segments form the required rectangle, otherwise output «NO».

Examples

input	Copy
1 1 6 1 1 0 6 0 6 0 6 1 1 1 1 0	
output	Copy
YES	

input	Copy
0 0 0 3 2 0 0 0 2 2 2 0 0 2 2 2	
output	Copy
NO	

→ Attention

The package for this problem was not updated by the problem writer or Codeforces administration after we've upgraded the judging servers. To adjust the time limit constraint, a solution execution time will be multiplied by 2. For example, if your solution works for 400 ms on judging servers, then the value 800 ms will be displayed and used to determine the verdict.

Codeforces Beta Round 14 (Div. 2)

Finished

Practice



→ Virtual participation

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Start virtual contest

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

→ Submit?

Language: GNU G++23 14.2 (64 bit, ms) ▼

Choose file: No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
326390504	Jun/28/2025 12:37	Accepted

→ **Problem tags**

brute force constructive algorithms
geometry implementation math
*1700

No tag edit access

→ **Contest materials**

- Announcement ✕
- Tutorial ✕

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