CodeVita
The TCS Global Coding Contest

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04 Hr 33 Min 54 Sec

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Coding Area

A B C D E F G H

ONLINE EDITOR (E)

Colliding Cannons

Problem Description

Constraints

-85<=LA,RA<=85

0<LS,RS<1000

0<h,D<10000

Input Format

The input has two lines.

The first line has two comma separated positive integers, h and D (the height of the tunnel and the distance between them). The unit of distance measurement is myth units.

The second line has four comma separated numbers (with up to two decimals each) giving LA, LS, RA and RS respectively, where LA, LS denote the angle (in degrees) and speed of firing (in myth units per second) of the left gun and RA, RS denote the angle (in degrees) and speed of firing (in myth units per second) of the right gun.

Output

If the two collide (the trajectories meet, and they arrive at the meeting point within 0.5 seconds of each other), the output is a comma separated string of the word Yes and the coordinates of the colliding point.

Yes,x,y

Here, x and y are the coordinates of the collision point, and each must be round to two decimal places

If they do not collide, the output is the word No.

No

Test Case

Explanation

Example 1

Input

500,2000

30,90,40,70

Output

Yes,47.20,171.01

Explanation

The distance between the guns is 500 myth units, and the height of the tunnel is 2000 myth units. The angle of firing of the left gun is 30 degrees and the speed of the bullet from the let gun is 90 myth units per second. The angle of the right gun is 40 degrees, and the speed of the bullet from the right gun is 70 myth units per second.

The coordinates of the intersection point of the trajectories is (to two decimal places) (46.20,171.01). The time for the left bullet to reach this point is (to two places) 3.80 seconds, and for the right bullet (to two seconds) is 3.80 seconds. As this is within 0.5 seconds of each other, the collision is assumed to have taken place. Hence the output is Yes,46.20,171.01

Example 2

Input

500,2000

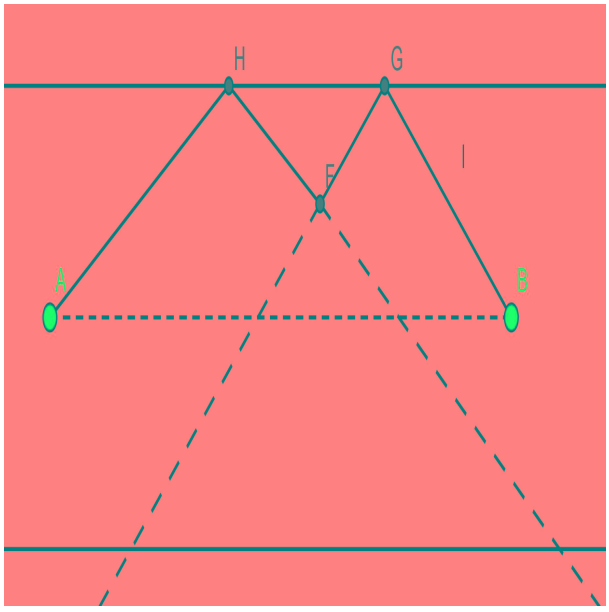
80,70,85,70

Output

Yes,84.19,104.74

Explanation

The distance between the guns is 500 myth units and the height of the tunnel is 2000 myth units. The left gun angle is 80 degrees, and the left gun speed is 70 myth units per second. The right gun angle is 85 degrees and the speed is 70 myth units per second also.



The guns shoot, and reflect off the ceiling (at H and G respectively), and the trajectories meet at F. The coordinates of F are (84.19, 104.74). The

time taken for the left bullet is 27.49 seconds, and the time for the second bullet is 27.17 seconds. As they arrive within 0.5 seconds of each other, this is considered a collision. Hence the output is Yes,84.19,104.74

Example 3

Input

500,2000

30,170,50,160

Output

No

Explanation

The two trajectories meet at (86.82,194.47), but the left bullet takes 2.29 seconds, and the right bullet takes 1.59 seconds. Hence, they do not pass within 0.5 seconds of each other, and there is no collision.

Upload Solution [Question : E]

☐ I, **sammeta giri** confirm that the answer submitted is my own.

☐ Took help from online sources (attributions)

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