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# Kangaroo



by wanbo

Problem

Submissions

Leaderboard

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Your submission will run against only preliminary test cases. Full test cases will run at the end of the day.

There are two kangaroos on an x-axis ready to jump in the positive direction (i.e, toward positive infinity). The first kangaroo starts at location  $x_1$  and moves at a rate of  $v_1$  meters per jump. The second kangaroo starts at location  $x_2$  and moves at a rate of  $v_2$  meters per jump. Given the starting locations and movement rates for each kangaroo, can you determine if they'll ever land at the same location at the same time?

## Input Format

A single line of four space-separated integers denoting the respective values of  $x_1$ ,  $v_1$ ,  $x_2$ , and  $v_2$ .

## Constraints

- $0 \leq x_1 < x_2 \leq 10000$
- $1 \leq v_1 \leq 10000$
- $1 \leq v_2 \leq 10000$

## Output Format

Print **YES** if they can land on the same location at the same time; otherwise, print **NO**.

**Note:** The two kangaroos must land at the same location *after making the same number of jumps*.

## Sample Input 0

```
0 3 4 2
```

## Sample Output 0

```
YES
```

## Explanation 0

The two kangaroos jump through the following sequence of locations:

1.  $0 \rightarrow 3 \rightarrow 6 \rightarrow 9 \rightarrow 12$

2.  $4 \rightarrow 6 \rightarrow 8 \rightarrow 10 \rightarrow 12$

Thus, the kangaroos meet after 4 jumps and we print YES.

## Sample Input 1

```
0 2 5 3
```

## Sample Output 1

NO

### Explanation 1

The second kangaroo has a starting location that is ahead (further to the right) of the first kangaroo's starting location (i.e.,  $x_2 > x_1$ ). Because the second kangaroo moves at a faster rate (meaning  $v_2 > v_1$ ) and is already ahead of the first kangaroo, the first kangaroo will never be able to catch up. Thus, we print NO.

Submissions: 4897

Max Score: 9

Difficulty: Easy

[More](#)

Current Buffer (saved locally, editable)  

Python 2  

```
1  #!/bin/python
2
3  import sys
4
5
6  x1,v1,x2,v2 = raw_input().strip().split(' ')
7  x1,v1,x2,v2 = [int(x1),int(v1),int(x2),int(v2)]
8
9  c=(float(x2)-x1)/(v1-v2)
10 if c>=0 and c==round(c):
11     print 'YES'
12 else:
13     print 'NO'
```

Line: 1 Col: 1

 [Upload Code as File](#)☐ Test against custom input

Run Code

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