F. Reverse

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

You are given two positive integers x and y. You can perform the following operation with x: write it in its binary form without leading zeros, add 0 or 1 to the right of it, reverse the binary form and turn it into a decimal number which is assigned as the new value of x.

For example:

- 34 can be turned into 81 via one operation: the binary form of 34 is 100010, if you add 1, reverse it and remove leading zeros, you will get 1010001, which is the binary form of 81.
- 34 can be turned into 17 via one operation: the binary form of 34 is 100010, if you add 0, reverse it and remove leading zeros, you will get 10001, which is the binary form of 17.
- 81 can be turned into 69 via one operation: the binary form of 81 is 1010001, if you add 0, reverse it and remove leading zeros, you will get 1000101, which is the binary form of 69.
- 34 can be turned into 69 via two operations: first you turn 34 into 81 and then 81 into 69.

Your task is to find out whether x can be turned into y after a certain number of operations (possibly zero).

Input

The only line of the input contains two integers x and y ($1 \le x, y \le 10^{18}$).

Output

Print `YES` if you can make x equal to y and `NO` if you can't.

Examples

input
3 3
output
YES

input
7 4
output
NO

input
2 8
output
NO

input
34 69
output
YES

input
8935891487501725 71487131900013807
output
YES

Codeforces Round #760 (Div. 3)

Finished

→ Practice?

Want to solve the contest problems after the official contest ends? Just register for practice and you will be able to submit solutions.

→ 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.

→ Problem tags

bitmasks implementation math strings

No tag edit access

→ Contest materials

- Announcement
- Tutorial

Note

In the first example, you don't even need to do anything.

The fourth example is described in the statement.
