

Searching an Array

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output
points: 100 · problem code: searcharray · author: inj

Your friend has a sorted array of n integers, and he wants you to find whether it contains a number k . You can make a maximum of $\lceil \log_2(n) \rceil$ queries of the following form:

- What is the number at the x -th position? (1 indexed).

Interaction

The first line of input contains two integers, n and k .

To query the number at the x -th position, print a line containing only x and the judge will respond with the number ($\leq 10^{18}$) at that position, which you can read as a line of input.

To give a final answer, print `"YES"` or `"NO"`, answering whether the integer exists in the array.

Constraints

- $1 \leq n \leq 10^9$
- $1 \leq k \leq 10^{18}$