

Peter's birthday

Peter is celebrating birthday today, but unfortunately he's forgotten how old he is.

His math teacher decided to exploit this lack of knowledge. Instead of giving Peter his age, he gave him values of ceiling ($\log_i(\text{age})$) for each natural $i \geq 2$. The math teacher stopped giving those values when it was possible to unambiguously determinate Peter's age.

Peter does not have brilliant memory, so he memorized only the first number and the number of numbers that his teacher gave to him.

As the best programmer among Peter's friends, you were asked to write program which calculates Peter's age based on the 2 values that Peter remembers. As one of Peter's friends you know that he is quite young. This means his age is not bigger than 10^{18} years.

input:

In the only line of input you will get two numbers L and N.

$L = \text{ceiling}(\log_2(\text{age}))$

N = number of numbers that teacher gave to Peter (including L)

Output:

If it is possible to define Peter's age your program shall write 2 lines:

YEAH (in the first line)

Peter's age (in the second line)

If there are 2 possibilities of Peter's age your program shall write 2 lines:

ALMOST (in the first line)

S B (in the second line)

where S is smaller probable value of Peter's age and B is bigger probable value of Peter's age

In any other case your program shall write 1 line:.

NO IDEA

Example 1

Input:

5 16

Output:

YEAH

17

Example 2

Input:

5 23

Output:

ALMOST

24 25

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