That's Magic!

Problem Statement.

A magician has the following three cards:

- A red card with the integer A.

- A green card with the integer B.

- A blue card with the integer C.

He can do the following operation **at most K times** (K times or less)

- Choose one of the three cards and multiply the written integer on it by 2.

His magic trick is successful if, after the operations, these conditions are satisfied :

- The integer on the green card is **strictly** greater than the integer on the red card.

- The integer on the blue card is **strictly** greater than the integer on the green card.

Can the magician perform his trick successfully?
If the magic can be successful, print "You tricked us!"; otherwise, print "Oh no!"

Input

$$1 \leq A \leq 10$$
$$1 \leq B \leq 10$$
$$1 \leq C \leq 10$$
$$1 \leq K \leq 20$$

Output.

If the magic can be successful, print "You tricked us!"; otherwise, print "Oh no!"

Examples.

example 1

Input:

```
7 2 5 3
```

Output:

```
You tricked us!
```

The magic will be successful if, for example, he does the following operations:

- First, choose the blue card. The integers on the red, green, and blue cards are now 7, 2, and 10, respectively.

- Second, choose the green card. The integers on the red, green, and blue cards are now 7, 4, and 10, respectively.

- Third, choose the green card. The integers on the red, green, and blue cards are now 7, 8, and 10, respectively.