COMPUTER SCIENCE
PROGRAMMING QUESTION

TYPE 1: FLOW CONTROL & OPERATORS **LEVEL 2**

1.

Question description

A shop sells a product whose regular price is A yen (Japanese currency) for B yen. By what percentage of the regular price is this product discounted?

Constraints

- A and B are integers.
- 1≤B<A≤10^5

Input Format

A B the values separated by a space

Output Format

Print the answer as a decimal.
Your answer will be judged as correct when its absolute or relative error from our answer is at most 10^−2.

Test Case 1

INPUT (STDIN)

```
100 80
```

EXPECTED OUTPUT

```
19.999999999999996
```

Test Case 2

INPUT (STDIN)

```
7 6
```

EXPECTED OUTPUT

```
14.28571428571429
```

2.

Question description

John and Subash will play a game against each other.
Initially, John and Subash have A and B candies, respectively.
They will alternately do the operation below. John goes first if C=0, and Subash goes first if C=1.

- Eat one of the candies he has.

The person who first becomes unable to do the operation loses. Which person will win?

Constraints

- All values in input are integers.
- $0 \leq A, B \leq 100$
- C in {0,1}

Input Format

A B C are the values separated by a space

Output Format

If John will win, print John; if Subash will win, print Subash.

Test Case 1

INPUT (STDIN)

```
2 1 0
```

EXPECTED OUTPUT

```
John
```

Test Case 2

INPUT (STDIN)

```
2 2 0
```

EXPECTED OUTPUT

```
Subash
```

3.

Question description

Takahashi, the magician, is fighting with a monster.

His magic can defeat a monster whose *health* is a multiple of M. It has no effect on a monster whose health is not a multiple of M .

Can his magic defeat a monster whose health is H?

Constraints

- $1 \leq M \leq 1000$
- $1 \leq H \leq 1000$
- M and H are integers.

Input Format

Input is given from Standard Input in the following format:

M H

Output Format

If Takahashi's magic can defeat the monster, print Yes; otherwise, print No.

Test Case 1

INPUT (STDIN)

```
10 125
```

EXPECTED OUTPUT

```
No
```

Test Case 2

INPUT (STDIN)

```
10 120
```

EXPECTED OUTPUT

```
Yes
```

4.

Question description

Rajeev has just started Programming, he is in first year of Engineering. Rajeev is reading about Relational Operators.
Relational Operators are operators which check relationship between two values. Given two numerical values **A** and **B** you need to help chef in finding the relationship between them that is,

- First one is greater than second or,
- First one is less than second or,
- First and second one are equal.

Constraints

- $1 \leq \mathbf{T} \leq 10000$
- $1 \leq \mathbf{A}, \mathbf{B} \leq 1000000001$

Input Format

Single line contains two integers **A** and **B**.

Output Format

Output contains any one of the relational operators
'<' , '>' , '='.

Test Case 1

INPUT (STDIN)

```
10 20
```

EXPECTED OUTPUT

```
<
```

Test Case 2

INPUT (STDIN)

```
20 10
```

EXPECTED OUTPUT

```
>
```

5.

Question description

Given is a positive integer N . Which are there more of, positive odd divisors of N or positive even divisors of N ?

Constraints

- All values in input are integers
- 1≤N≤10^18

Input Format

Refer the test case

Output Format

Refer the test case

Test Case 1

INPUT (STDIN)

```
2
```

EXPECTED OUTPUT

```
Same
```

Test Case 2

INPUT (STDIN)

```
998244353
```

EXPECTED OUTPUT

```
Odd
```

6.

This is the 214 -th Programming Contest

The PCs so far have had the following number of problems.

- The 1-st through 125-th PCs had 4 problems each.
- The 126-th through 211-th PCs had 6 problems each.
- The 212-th through 214-th PCs have 8 problems each.

Find the number of problems in the N-th PC.

Constraints:

- $1 \leq N \leq 214$
- All values in input are integers.

Input Format

Input is given from Standard Input in the following format:

Output Format

Print the answer.

Test Case 1

INPUT (STDIN)

```
214
```

EXPECTED OUTPUT

```
8
```

Test Case 2

INPUT (STDIN)

```
1
```

EXPECTED OUTPUT

```
4
```

7.

Question description

The door of ISRO's laboratory is locked with a security code.

The security code is a 4-digit number. We say the security code is *hard to enter* when it contains two consecutive digits that are the same.

Function Description

You are given the current security code *S*. If *S* is hard to enter, print Bad; otherwise, print Good.

Constraints

- *S* is a 4-character string consisting of digits.

Input Format

Refer the test case

Output Format

If *S* is hard to enter, print Bad; otherwise, print Good.

Test Case 1

INPUT (STDIN)

```
3776
```

EXPECTED OUTPUT

```
Bad
```

Test Case 2

INPUT (STDIN)

```
8080
```

EXPECTED OUTPUT

```
Good
```

8.

Question description

We have two bottles for holding water.

Bottle 1 can hold up to A milliliters of water, and now it contains B milliliters of water.

Bottle 2 contains C milliliters of water.

We will transfer water from Bottle 2 to Bottle 1 as much as possible.

How much amount of water will remain in Bottle 2?

Constraints

- All values in input are integers.
- 1 \leq B \leq A \leq 201≤B≤A≤20
- 1 \leq C \leq 201≤C≤20

Input Format

A B C

Output Format

Print the integer representing the amount of water, in milliliters, that will remain in Bottle 2.

Test Case 1

INPUT (STDIN)

```
6 4 3
```

EXPECTED OUTPUT

```
1
```

Test Case 2

INPUT (STDIN)

```
8 3 9
```

EXPECTED OUTPUT

```
4
```

9.

Question description

Vinayak is playing a game.

In this game, each time the number of coins you have collected so far becomes a multiple of 100 , you get a prize.

Vinayak has collected X coins so far. How many more coins does he need to collect before he gets the next prize? (If X is a multiple of 100, we assume that he has already got the prize for collecting X coins in total.)

Constraints

- $0 \leq X \leq 10^5$

Input Format

X is the value

Output Format

Print the number of additional coins that he needs to collect before he gets the next prize.

Test Case 1

INPUT (STDIN)

```
140
```

EXPECTED OUTPUT

```
60
```

Test Case 2

INPUT (STDIN)

```
1000
```

EXPECTED OUTPUT

```
100
```

10.

Question description

One programming language has the following keywords that cannot be used as identifiers:

break, case, continue, default, defer, else, for, func, goto, if, map, range, return, struct, type, var

Nithi wants to write a program. Can you help him to find if the given word is a keyword or not?

Input Format

A single line input like defer

Output Format

Print the bellow statement

defer is a keyword

Test Case 1

INPUT (STDIN)

```
if
```

EXPECTED OUTPUT

```
if is a keyword
```

Test Case 2

INPUT (STDIN)

```
sqr
```

EXPECTED OUTPUT

```
sqr is a not keyword
```