A – Repression

Problem Statement

There are three cards on the desk, each with a positive integer written on it. The integers on the cards are A, B, and C.

You have chosen two cards and picked them up.

Find the maximum possible sum of the integers written on the picked cards.

Constraints

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

Input

Input is given from Standard Input in the following format: $A \ \ B \ \ C$

Output

Print the answer as an integer.

Sample Input 1

```
3 4 5
```

Sample Output 1

```
9
```

If you pick up two cards with 4 and 5, the sum of the integers will be $4+5=9$.

There is no way to pick up cards with a greater sum, so we should print 99.

Sample Input 2

```
6 6 6
```

Sample Output 2

```
12
```

Whichever two cards you choose, the sum of the integers will be 12.

Sample Input 3

```
99 99 98
```

Sample Output 3

```
198
```

B - Rolling Dice

Problem Statement

Is it possible to get a sum of B when throwing a die with six faces $1,2,\ldots,6$ A times?

Constraints

- $1 \leq A \leq 100$
- $1 \leq B \leq 1000$
- A and B are integers.

Input

Input is given from Standard Input in the following format: A B

Output

If it is possible to get a sum of B, print `Yes`; otherwise, print `No`.

Sample Input 1

```
2 11
```

Sample Output 1

```
Yes
```

There are two ways to get a sum of 11 when throwing a 6-faced die twice:

- getting 6 in the first throw and 5 in the second throw;
- getting 5 in the first throw and 6 in the second throw.

Sample Input 2

```
2 13
```

Sample Output 2

```
No
```

There is no way to get a sum of 13 when throwing a 6-faced die twice.

Sample Input 3

```
100 600
```

Sample Output 3

```
Yes
```

C - Maxi-Buying

Problem Statement

The consumption tax rate in the Republic of AtCoder is 8 percent.
An energy drink shop in this country sells one can of energy drink for N yen (Japanese currency) without tax.
Including tax, it will be $\lfloor 1.08 \times N \rfloor$ yen, where $\lfloor x \rfloor$ denotes the greatest integer not exceeding x for a real number x.
If this tax-included price is lower than the list price of 206 yen, print `Yay!`; if it is equal to the list price, print `so-so`; if it is higher than the list price, print `:(`.

Constraints

- $1 \leq N \leq 300$
- N is an integer.

Input

Input is given from Standard Input in the following format: N

Output

Print the answer.

Sample Input 1

```
180
```

Sample Output 1

```
Yay!
```

For $N=180$, the tax-included price is $\lfloor 180 \times 1.08 \rfloor = 194$ yen, which is lower than the list price of 206 yen.

Sample Input 2

```
200
```

Sample Output 2

```
:(
```

Sample Input 3

```
191
```

Sample Output 3

```
so-so
```

In this case, the tax-included price is exactly equal to the list price of 206 yen.

D – kcal

Problem Statement

We have a drink that has A kilocalories of energy per 100 milliliters. How many kilocalories of energy does B milliliters of this drink have?

Constraints

- $0 \leq A, B \leq 1000$
- All values in input are integers.

Input

Input is given from Standard Input in the following format: A B

Output

Print a number representing the answer.

Your output is considered correct when its absolute or relative error from our answer is at most 10^{-6}.

Sample Input 1

```
45 200
```

Sample Output 1

```
90
```

We have a drink that has 45 kilocalories of energy per 100 milliliters. 200 milliliters of this drink have 90 kilocalories of energy.

Sample Input 2

```
37 450
```

Sample Output 2

```
166.5
```

The answer may not be an integer.

Sample Input 3

```
0 1000
```

Sample Output 3

```
0
```

Sample Input 4

```
50 0
```

Sample Output 4

```
0
```

E - Rock-paper-scissors

Problem Statement

Serval, Fennec, and Raccoon played rock-paper-scissors and had a draw.

You are given characters `x` and `y` representing the hand thrown by Fennec and Raccoon, respectively. Here, `0` stands for rock, `1` stands for scissors, and `2` stands for paper.

Print the character corresponding to the hand thrown by Serval, which can be uniquely determined.

Constraints

- Each of `x` and `y` is `0`, `1`, or `2`.

Input

Input is given from Standard Input in the following format: `x y`

Output

Print the answer, which should be `0` for rock, `1` for scissors, or `2` for paper.

Sample Input 1

```
0 1
```

Sample Output 1

```
2
```

Fennec threw rock, and Raccoon threw scissors. To have a draw, Serval must have thrown paper.

Sample Input 2

```
0 0
```

Sample Output 2

```
0
```

Fennec threw rock, and Raccoon threw rock. To have a draw, Serval must have thrown rock.

F – Chinchirorin

Problem Statement

Takahashi threw three dice, and they showed three numbers a, b, and c.

If there are two same numbers among a, b, and c, print the remaining number. Otherwise, print 0.

Constraints

- $1 \leq a, b, c \leq 6$
- All of a, b, and c are integers.

Input

Input is given from Standard Input in the following format: a b c

Output

If there are two same numbers among a, b, and c, print the remaining number. Otherwise, print 0.

Sample Input 1

```
2 5 2
```

Sample Output 1

```
5
```

The first and third dice both showed 2, so we should print the number on the remaining dice, which is 5.

Sample Input 2

```
4 5 6
```

Sample Output 2

```
0
```

Any two numbers are different, so we should print 0.

Sample Input 3

```
1 1 1
```

Sample Output 3

```
1
```

Any two numbers are the same. Whichever two dice we choose, the number on the remaining dice will be 1.

G - Three Dice

Problem Statement

Takahashi has rolled three dice. They are showing numbers a, b, and c on the top faces.

Find the sum of the numbers on the bottom faces.

Here, each of these dice is a standard cubic die, where the sum of the numbers on opposite faces is 7.

Constrains

- $1 \leq a, b, c \leq 6$
- All values in input are integers.

Input

Input is given from Standard Input in the following format: a b c

Output

Print the sum of the numbers on the bottom faces of the three dice.

Sample Input 1

```
1 4 3
```

Sample Output 1

```
13
```

The numbers on the bottom faces are 6, 3, and 4. We have $6+3+4=13$, which should be printed.

Sample Input 2

```
5 6 4
```

Sample Output 2

```
6
```

H - Tiny Arithmetic Sequence

Problem Statement

You are given a sequence of three numbers: $A=(A1, A2, A3)$

Is it possible to rearrange the elements of A into an arithmetic sequence?

In other words, is it possible to rearrange the elements of A so that $A3-A2=A2-A1$?

Constrains

- $1 \leq Ai \leq 100$
- All values in input are integers.

Input

Input is given from Standard Input in the following format: $A1 \ \ A2 \ \ A3$

Output

If it is possible to rearrange the elements of A into an arithmetic sequence, print `Yes`; otherwise, print `No`.

Sample Input 1

```
5 1 3
```

Sample Output 1

```
Yes
```

We can rearrange them into an arithmetic sequence by, for example, making it (1,3,5).

Sample Input 2

```
1 4 3
```

Sample Output 2

```
No
```

There is no way to rearrange them into an arithmetic sequence.

Sample Input 3

```
5 5 5
```

Sample Output 3

```
Yes
```

All elements of A may be equal, or A may be an arithmetic sequence already.

I – Century

Problem Statement

In what century is the year N?

What is century?
A century is a period of 100 years. For example, the 1-st century consists of the years 1 through 100, the 2-nd century consists of the
years 101 through 200, and so on.

Constraints

- $1 \leq N \leq 3000$

Input

Input is given from Standard Input in the following format: N

Output

Print the answer as an integer.

Sample Input 1

```
2021
```

Sample Output 1

```
21
```

This year 2021 is in the 21-st century.

Sample Input 2

```
200
```

Sample Output 2

```
2
```

The year 200 is in the 2-nd century.

J – Dragons

Problem Statement

Kirito is stuck on a level of the MMORPG he is playing now. To move on in the game, he's got to defeat all n dragons that live on this level. Kirito and the dragons have strength, which is represented by an integer. In the duel between two opponents the duel's outcome is determined by their strength. Initially, Kirito's strength equals s.

If Kirito starts dueling with the i-th ($1 \le i \le n$) dragon and Kirito's strength is not greater than the dragon's strength x_i, then Kirito loses the duel and dies. But if Kirito's strength is greater than the dragon's strength, then he defeats the dragon and gets a bonus strength increase by y_i.

Kirito can fight the dragons in any order. Determine whether he can move on to the next level of the game, that is, defeat all dragons without a single loss.

Input

The first line contains two space-separated integers s and n ($1 \le s \le 10^4$, $1 \le n \le 10^3$). Then n lines follow: the i-th line contains space-separated integers x_i and y_i ($1 \le x_i \le 10^4$, $0 \le y_i \le 10^4$) — the i-th dragon's strength and the bonus for defeating it.

Output

On a single line print "YES" (without the quotes), if Kirito can move on to the next level and print "NO" (without the quotes), if he can't.

Examples

Input

```
2 2
1 99
100 0
```

Output

```
YES
```

Input

```
10 1
100 100
```

Output

```
NO
```

Note

In the first sample Kirito's strength initially equals 2. As the first dragon's strength is less than 2, Kirito can fight it and defeat it. After that he gets the bonus and his strength increases to 2 + 99 = 101. Now he can defeat the second dragon and move on to the next level.

In the second sample Kirito's strength is too small to defeat the only dragon and win.

K - Boy or Girl

Those days, many boys use beautiful girls' photos as avatars in forums. So, it is pretty hard to tell the gender of a user at the first glance. Last year, our hero went to a forum and had a nice chat with a beauty (he thought so). After that they talked very often and eventually, they became a couple in the network.

But yesterday, he came to see "her" in the real world and found out "she" is actually a very strong man! Our hero is very sad and he is too tired to love again now. So, he came up with a way to recognize users' genders by their usernames.

This is his method: if the number of distinct characters in one's username is odd, then he is a male, otherwise she is a female. You are given the string that denotes the username, please help our hero to determine the gender of this user by his method.

Input

The first line contains a non-empty string, that contains only lowercase English letters — the username. This string contains at most 100 letters.

Output

If it is a female by our hero's method, print "CHAT WITH HER!" (without the quotes), otherwise, print "IGNORE HIM!" (without the quotes).

Examples

Input

```
wjmzbmr
```

Output

```
CHAT WITH HER!
```

Input

```
xiaodao
```

Output

```
IGNORE HIM!
```

Input

```
sevenkplus
```

Output

```
CHAT WITH HER!
```

Note

For the first example. There are 6 distinct characters in "wjmzbmr". These characters are: "w", "j", "m", "z", "b", "r". So wjmzbmr is a female and you should print "CHAT WITH HER!".

L - Amusing Joke

Problem Statement

So, the New Year holidays are over. Santa Claus and his colleagues can take a rest and have guests at last. When two "New Year and Christmas Men" meet, their assistants cut out of cardboard the letters from the guest's name and the host's name in honor of this event. Then the hung the letters above the main entrance. One night, when everyone went to bed, someone took all the letters of our characters' names. Then he may have shuffled the letters and put them in one pile in front of the door.

The next morning it was impossible to find the culprit who had made the disorder. But everybody wondered whether it is possible to restore the names of the host and his guests from the letters lying at the door? That is, we need to verify that there are no extra letters, and that nobody will need to cut more letters.

Help the "New Year and Christmas Men" and their friends to cope with this problem. You are given both inscriptions that hung over the front door the previous night, and a pile of letters that were found at the front door next morning.

Input

The input file consists of three lines: the first line contains the guest's name, the second line contains the name of the residence host and the third line contains letters in a pile that were found at the door in the morning. All lines are not empty and contain only uppercase Latin letters. The length of each line does not exceed 100.

Output

Print "YES" without the quotes, if the letters in the pile could be permuted to make the names of the "New Year and Christmas Men". Otherwise, print "NO" without the quotes.

Examples

Input

```
SANTACLAUS
DEDMOROZ
SANTAMOROZDEDCLAUS
```

Output

```
YES
```

Input

```
PAPAINOEL
JOULUPUKKI
JOULNAPAOILELUPUKKI
```

Output

```
NO
```

Input

```
BABBONATALE
FATHERCHRISTMAS
BABCHRISTMASBONATALLEFATHER
```

Output

```
NO
```

Note

In the first sample the letters written in the last line can be used to write the names and there won't be any extra letters left.

In the second sample letter "P" is missing from the pile and there's an extra letter "L".

In the third sample there's an extra letter "L".

M - Ezzat and Two Subsequences

Problem Statement

Ezzat has an array of n integers (maybe negative). He wants to split it into two non-empty subsequences a and b, such that every element from the array belongs to exactly one subsequence, and the value of $f(a)+f(b)$ is the maximum possible value, where $f(x)$ is the average of the subsequence x.

A sequence x is a subsequence of a sequence y if x can be obtained from y by deletion of several (possibly, zero or all) elements.

The average of a subsequence is the sum of the numbers of this subsequence divided by the size of the subsequence.

For example, the average of $[1,5,6]$ is $(1+5+6)/3=12/3=4$, so $f([1,5,6])=4$.

Input

The first line contains a single integer t ($1 \le t \le 10^3$ — the number of test cases. Each test case consists of two lines.

The first line contains a single integer n ($2 \le n \le 10^5$).

The second line contains n integers $a_1, a_2, \ldots, a_n$ ($-10^9 \le a_i \le 10^9$).

It is guaranteed that the sum of n over all test cases does not exceed $3 \cdot 10^5$.

Output

For each test case, print a single value — the maximum value that Ezzat can achieve.

Your answer is considered correct if its absolute or relative error does not exceed $10-610-6$.

Formally, let your answer be aa, and the jury's answer be bb. Your answer is accepted if and only if $|a-b|/\max(1,|b|) \le 10^{-6}$.

Example

Input

```
4
3
3 1 2
3
-7 -6 -6
3
2 2 2
4
17 3 5 -3
```

Output

```
4.500000000
-12.500000000
4.000000000
18.666666667
```

Note

In the first test case, the array is $[3, 1, 2]$. These are all the possible ways to split this array:

- a=[3], b=[1,2], so the value of $f(a)+f(b)=3+1.5=4.5$.
- a=[3,1], b=[2], so the value of $f(a)+f(b)=2+2=4$.
- a=[3,2], b=[1], so the value of $f(a)+f(b)=2.5+1=3.5$.

Therefore, the maximum possible value 4.5.

In the second test case, the array is $[-7,-6,-6]$. These are all the possible ways to split this array:

- a=[−7], b=[−6,−6], so the value of $f(a)+f(b)=(-7)+(-6)=-13$.
- a=[−7,−6], b=[−6], so the value of $f(a)+f(b)=(-6.5)+(-6)=-12.5$.

Therefore, the maximum possible value -12.5.

N - Soft Drinking

Problem Statement

This winter is so cold in Nvodsk! A group of *n* friends decided to buy *k* bottles of a soft drink called "Take-It-Light" to warm up a bit. Each bottle has *l* milliliters of the drink. Also, they bought *c* limes and cut each of them into *d* slices. After that they found *p* grams of salt.

To make a toast, each friend needs *nl* milliliters of the drink, a slice of lime and *np* grams of salt. The friends want to make as many toasts as they can, provided they all drink the same amount. How many toasts can each friend make?

Input

The first and only line contains positive integers *n*, *k*, *l*, *c*, *d*, *p*, *nl*, *np*, not exceeding 1000 and no less than 1. The numbers are separated by exactly one space.

Output

Print a single integer — the number of toasts each friend can make.

Examples

Input
```
3 4 5 10 8 100 3 1
```
Output
```
2
```
Input
```
5 100 10 1 19 90 4 3
```
Output
```
3
```
Input
```
10 1000 1000 25 23 1 50 1
```
Output
```
0
```

Note

A comment to the first sample:

Overall, the friends have 4 * 5 = 20 milliliters of the drink, it is enough to make 20 / 3 = 6 toasts. The limes are enough for 10 * 8 = 80 toasts and the salt is enough for 100 / 1 = 100 toasts. However, there are 3 friends in the group, so the answer is *min*(6, 80, 100) / 3 = 2.

O - HQ9+

Problem Statement

HQ9+ is a joke programming language which has only four one-character instructions:

- "H" prints "Hello, World!",
- "Q" prints the source code of the program itself,
- "9" prints the lyrics of "99 Bottles of Beer" song,
- "+" increments the value stored in the internal accumulator.

Instructions: "H" and "Q" are case-sensitive and must be uppercase. The characters of the program which are not instructions are ignored.

You are given a program written in HQ9+. You must figure out whether executing this program will produce any output.

Input

The input will consist of a single line *p* which will give a program in HQ9+. String *p* will contain between 1 and 100 characters, inclusive. ASCII-code of each character of *p* will be between 33 (exclamation mark) and 126 (tilde), inclusive.

Output

Output "YES", if executing the program will produce any output, and "NO" otherwise.

Examples

Input

```
Hi!
```

Output

```
YES
```

Input

```
Codeforces
```

Output

```
NO
```

Note

In the first case the program contains only one instruction — "H", which prints "Hello, World!".

In the second case none of the program characters are language instructions.

P – Translation

Problem Statement

The translation from the Berland language into the Birland language is not an easy task. Those languages are very similar: a berlandish word differs from a birlandish word with the same meaning a little: it is spelled (and pronounced) reversely. For example, a Berlandish word code corresponds to a Birlandish word edoc. However, it's easy to make a mistake during the «translation». Vasya translated word *s* from Berlandish into Birlandish as *t*. Help him: find out if he translated the word correctly.

Input

The first line contains word *s*, the second line contains word *t*. The words consist of lowercase Latin letters. The input data do not consist unnecessary spaces. The words are not empty and their lengths do not exceed 100 symbols.

Output

If the word *t* is a word *s*, written reversely, print YES, otherwise print NO.

Examples

Input

```
code
edoc
```

Output

```
YES
```

Input

```
abb
aba
```

Output

```
NO
```

Input

```
code
code
```

Output

```
NO
```

Q – Football

Problem Statement

One day Vasya decided to have a look at the results of Berland 1910 Football Championship’s finals. Unfortunately, he didn't find the overall score of the match; however, he got hold of a profound description of the match's process. Overall there are *n* lines in that description each of which described one goal. Every goal was marked with the name of the team that had scored it. Help Vasya, learn the name of the team that won the finals. It is guaranteed that the match did not end in a tie.

Input

The first line contains an integer *n* ($1 \le n \le 100$) — the number of lines in the description. Then follow *n* lines — for each goal the names of the teams that scored it. The names are non-empty lines consisting of uppercase Latin letters whose lengths do not exceed 10 symbols. It is guaranteed that the match did not end in a tie and the description contains no more than two different teams.

Output

Print the name of the winning team. We remind you that in football the team that scores more goals is considered the winner.

Examples

Input

```
1
ABC
```

Output

```
ABC
```

Input

```
5
A
ABA
ABA
```

```
A
A
```

Output

```
A
```

R – Star

Problem Statement

Takahashi 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.

Takahashi 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

- $0 \leq X \leq 105$

Input

Input is given from Standard Input in the following format:

X

Output

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

Sample Input 1

```
140
```

Sample Output 1

```
60
```

He gets the next prize when he has collected 200 coins in total. To get it, he needs to collect 60 more coins.

Sample Input 2

```
1000
```

Sample Output 2

```
100
```

He gets the next prize when he has collected 1100 coins in total.

S – Discount

Problem Statement

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.
- $1 \leq B < A \leq 105$

Input

Input is given from Standard Input in the following format: A B

Output

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}.

Sample Input 1

```
100 80
```

Sample Output 1

```
20.0
```

If a product whose regular price is 100 yen is sold for 80 yen, it is discounted by 20 percent of the regular price.

Sample Input 2

```
7 6
```

Sample Output 2

```
14.285714285714285714
```

Sample Input 3

```
99999 99998
```

Sample Output 3

```
0.001000010000010000100
```

T - Vanishing Pitch

Problem Statement

Takahashi and Aoki are playing baseball. Takahashi is the pitcher, and Aoki is the batter.
Takahashi can throw an invisible pitch. When he throws it, the ball moves linearly at a constant speed $\mathrm{V}\,\mathrm{m/s}$, and it becomes invisible between the moment T seconds after throwing and the moment S seconds after throwing (inclusive). The ball keeps moving when it is invisible.
If the ball is not invisible at the moment the ball is exactly $\mathrm{D}\,\mathrm{m}$ away from Takahashi, Aoki can hit the ball. Otherwise, he cannot hit it. Can Aoki hit the ball?

Constraints

- $1 \leq \mathrm{V} \leq 1000$
- $1 \leq \mathrm{T} < \mathrm{S} \leq 1000$
- $1 \leq \mathrm{D} \leq 1000$
- All values in input are integers.

Input

Input is given from Standard Input in the following format: $\mathrm{V}\ \ \mathrm{T}\ \ \mathrm{S}\ \ \mathrm{D}$

Output

If Aoki can hit the ball, print `Yes`; otherwise, print `No`.

Sample Input 1

```
10 3 5 20
```

Sample Output 1

```
Yes
```

The ball is exactly $20\mathrm{m}$ away from Takahashi at 2 seconds after throwing. On the other hand, the ball becomes invisible between 3 and 5 seconds (inclusive) after throwing, so Aoki can hit the ball.

Sample Input 2

```
10 3 5 30
```

Sample Output 2

```
No
```

Note that the ball is also invisible at T seconds and S seconds after throwing. Here, the ball is exactly Dm away from Takahashi at T seconds after throwing, so the ball is invisible and cannot be hit by Aoki.

U - Square Inequality

Problem Statement

You are given integers A, B, and C.
Determine whether $A^2+B^2<C^2$ holds.

Constraints

- $0 \leq A \leq 1000$
- $0 \leq B \leq 1000$
- $0 \leq C \leq 1000$
- A, B, and C are integers.

Input

Input is given from Standard Input in the following format: `A B C`

Output

If $A^2+B^2<C^2$ holds, print `Yes`; otherwise, print `No`.

Sample Input 1

```
2 2 4
```

Sample Output 1

```
Yes
```

Since $A^2+B^2=2^2+2^2=8$ and $C^2=4^2=16$, we have $A^2+B^2<C^2$, so we should print `Yes`.

Sample Input 2

```
10 10 10
```

Sample Output 2

```
No
```

Since A2+B2=200 and C2=100, A2+B2<C2 does not hold.

Sample Input 3

```
3 4 5
```

Sample Output 3

```
No
```

V - Palindrome with leading zeros

Problem Statement

Given is an integer N.

Is it possible to add zero or more 0s at the beginning of the string representing N in base ten to get a palindrome?

Constraints

- $0 \leq N \leq 109$

Input

Input is given from Standard Input in the following format:

N

Output

If a palindrome can be made, print `Yes`; otherwise, print `No`.

Sample Input 1

```
1210
```

Sample Output 1

```
Yes
```

Adding one `0` at the beginning of `1210` results in `01210`, a palindrome.

Sample Input 2

```
777
```

Sample Output 2

```
Yes
```

`777` is already a palindrome.

Sample Input 3

```
123456789
```

Sample Output 3

```
No
```

W – Rotate

Problem Statement

Given is a string S of length 3.
Move the first character of S to the end of S and print the resulting string S'.

Constraints

- S is a string of length 3 consisting of lowercase English letters.

Input

Input is given from Standard Input in the following format: S

Output

Print S'.

Sample Input 1

```
abc
```

Sample Output 1

```
bca
```

Moving the first character `a` of the string `abc` results in `bca`.

Sample Input 2

```
aab
```

Sample Output 2

```
Aba
```

X - Difference Max

Problem Statement

Given are integers a, b, c, and d.
We will choose integers x and y such that $a \leq x \leq b$ and $c \leq y \leq d$. Find the maximum possible value of $x-y$ here.

Constraints

- All values in input are integers.
- $-100 \leq a \leq b \leq 100$
- $-100 \leq c \leq d \leq 100$

Input

Input is given from Standard Input in the following format: a b c d

Output

Print the answer.

Sample Input 1

```
0 10
0 10
```

Sample Output 1

```
10
```

$(x,y)=(10,0)$ achieves the maximum value $x-y=10$.

Sample Input 2

```
-100 -100
100 100
```

Sample Output 2

```
-200
```

Sample Input 3

```
-100 100
-100 100
```

Sample Output 3

```
200
```

Y - Health M Death

Problem Statement

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

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

Input

Input is given from Standard Input in the following format: $\mathrm{M}\ \ \mathrm{H}$

Output

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

Sample Input 1

```
10 120
```

Sample Output 1

```
Yes
```

Takahashi's magic can defeat a monster whose health is a multiple of 10.

120 is a multiple of 10, so his magic can defeat the monster with health 120.

Sample Input 2

```
10 125
```

Sample Output 2

```
No
```

125 is not a multiple of 10, so his magic cannot defeat the monster with health 125.

Z - Job Assignment

Problem Statement

Your company has N employees, called Employee 1 through N.
You have received two work orders, called Work A and B, which must be completed.
Employee i can complete Work A in A_i minutes and Work B in B_i minutes.

You will assign each work to one employee.
You can assign both works to the same employee, in which case the time it takes for him/her to complete them is the sum of the times it takes for him/her to do them individually.
If you assign the works to different employees, the time it takes for them to complete them is the longer of the times it takes for them to do their respective works.
Find the shortest possible time needed to complete the works.

Constraints

- $2 \leq N \leq 1000$
- $1 \leq A_i \leq 105$
- $1 \leq B_i \leq 105$
- All values in input are integers.

Input

Input is given from Standard Input in the following format:

N A_1 B_1 A_2 B_2 A_3 B_3 A_N B_N

Output

Print the shortest possible time needed to complete the works, in minutes.

Sample Input 1

```
3
8 5
4 4
7 9
```

Sample Output 1

```
5
```

If you assign Work A to Employee 2 and Work B to Employee 1, they will complete them in 4 and 5 minutes, respectively.
Since you assigned the works to different employees, it will take $\max(4,5)=5$ minutes for the two works to be finished.
It is impossible to finish them earlier.

Sample Input 2

```
3
11 7
3 2
6 7
```

Sample Output 2

```
5
```

It is optimal to assign both works to Employee 2.
Note that if you assign both works to the same employee, the time it takes for him/her to complete them is the sum of the times it takes for him/her to do them individually.