MBSTU Unofficial Onsite Practice Contest
MBSTU Round 1 Div. 2

Problem Set

A - Back to High School Physics
Time Limit:3000MS   Memory Limit:0KB

A particle has initial velocity and acceleration. If its velocity after certain time is v then what will its
displacement be in twice of that time?

Input

The input will contain two integers in each line. Each line makes one set of input. These two integers
denote the value of v (-100 <= v <= 100) and t (0 <= t <= 200)
(t means at the time the particle gains that velocity)

Output

For each line of input print a single integer in one line denoting the displacement in double of that time.

Sample Input

0 0

5 12

Sample Output

0

120

B - Relational Operator
Time Limit:3000MS   Memory Limit:0KB

Some operators checks about the relationship between two values and these operators are called relational operators. Given two numerical values your job is just to find out the relationship between them that is

(i)   First one is greater than the second $>$
(ii) First one is less than the second or $<$
(iii) First and second one is equal. $=$

Input

First line of the input file is an integer t $(t < 15)$ which denotes how many sets of inputs are there.
Each of the next t lines contain two integers a and b $(|a|; |b| < 1000000001)$.

Output

For each line of input produce one line of output. This line contains any one of the relational operators
`>`, `<` or `=`, which indicates the relation that is appropriate for the given two numbers.

Sample Input

3
10 20
20 10
10 10

Sample Output

<
>
=

scanf ("%lld %lld", &a, &b);

if (a<b) { printf ("<")}
else if (a>b) { printf (">")}
else {printf ("=")}

C - Find Remainder
Time Limit:1000MS   Memory Limit:0KB

Write a program to find the remainder when two given numbers are divided.

Input

The first line contains an integer **T**, total number of test cases. Then follow **T** lines, each line contains two Integers **A** and **B**.

Output

Find remainder when **A** is divided by **B**.

Constraints

- $1 \le T \le 1000$
- $1 \le A,B \le 10000$

Example
```
Input
3
1 2
100 200
10 40
```

```
Output
1
100
10
```

D - Primality Test

Alice and Bob are meeting after a long time. As usual they love to play some math games. This times Alice takes the call and decides the game. The game is very simple, Alice says out an integer and Bob has to say whether the number is prime or not. Bob as usual knows the logic but since Alice doesn't give Bob much time to think, so Bob decides to write a computer program.

Help Bob accomplish this task by writing a computer program which will calculate whether the number is prime or not .

Input

The first line of the input contains T testcases, T lines follow

Each of T line contains an integer N which has to be tested for primality

Output

For each test case output in a separate line, "yes" if the number is prime else "no"

Constraints

1<=T<=20
1<=N<=10000
~~1<=M<=10000~~

```
Input:
5
23
13
20
1000
99991
```

```
Output:
yes
yes
no
no
yes
```

E - First and Last Digit
Time Limit:1000MS   Memory Limit:0KB

If Give an integer **N** . Write a program to obtain the sum of the first and last digit of this number.

Input

The first line contains an integer **T**, total number of test cases. Then follow **T** lines, each line contains an integer **N**.

Output

Display the sum of first and last digit of **N**.

Constraints

- $1 \leq T \leq 1000$
- $1 \leq N \leq 1000000$

Example
Input
```
3
1234
124894
242323
```

Output
```
5
5
5
```

F - Reverse The Number
Time Limit:1000MS   Memory Limit:0KB

If an Integer N, write a program to reverse the given number.

Input

The first line contains an integer T, total number of testcases. Then follow T lines, each line contains an integer N.

Output

Display the reverse of the given number N.

Constraints

- $1 \leq T \leq 1000$
- $1 \leq N \leq 100000$

Example
Input
```
3
12345
31203
2123
```
Output
```
54321
30213
3212
```

G - Vanya and Cubes
Time Limit: 1000MS   Memory Limit: 262144KB

Vanya got n cubes. He decided to build a pyramid from them. Vanya wants to build the pyramid as follows: the top level of the pyramid must consist of 1 cube, the second level must consist of $1+2=3$ cubes, the third level must have $1+2+3=6$ cubes, and so on. Thus, the i-th level of the pyramid must have $1+2+...+(i-1)+i$ cubes.

Vanya wants to know what is the maximum height of the pyramid that he can make using the given cubes.

Input

The first line contains integer n ($1 \le n \le 10^4$) — the number of cubes given to Vanya.

Output

Print the maximum possible height of the pyramid in the single line.

Sample test(s)

input

1

output
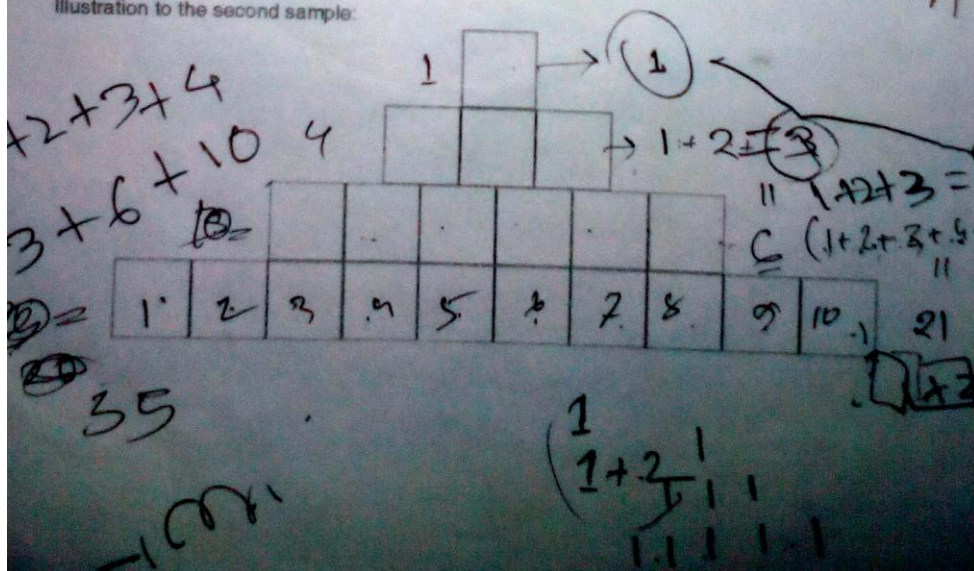
1

input

25

output

4

Note

Illustration to the second sample:

H - Watermelon

Time Limit:1000MS   Memory Limit:65536KB

One hot summer day Pete and his friend Billy decided to buy a watermelon. They chose the biggest and the ripest one, in their opinion. After that the watermelon was weighed, and the scales showed w kilos. They rushed home, dying of thirst, and decided to divide the berry, however they faced a hard problem.

Pete and Billy are great fans of even numbers, that's why they want to divide the watermelon in such a way that each of the two parts weighs even number of kilos, at the same time it is not obligatory that the parts are equal. The boys are extremely tired and want to start their meal as soon as possible, that's why you should help them and find out, if they can divide the watermelon in the way they want. For sure, each of them should get a part of positive weight.

Input

The first (and the only) input line contains integer number w ($1 \leq w \leq 100$) — the weight of the watermelon bought by the boys.

Output

Print YES, if the boys can divide the watermelon into two parts, each of them weighing even number of kilos; and NO in the opposite case.

Sample Input

Input

8

Output

YES

Hint

For example, the boys can divide the watermelon into two parts of 2 and 6 kilos respectively (another variant — two parts of 4 and 4 kilos).