

MNNIT COMPUTER CODING CLUB

CLASS-6

BASICS OF C



DISCUSSION

- Pattern Printing
- If else ladder
- Switch Case (Menu Driven Program)
- Armstrong, Perfect Number
- Sqrt() implementation

ONLINE JUDGE

- Constrains:
 - Time Limit in seconds
 - Input Constrains
 - Memory Limit
- Errors:
 - Run Time Error
 - Segmentation fault
 - Declaration of large size array
 - Dividing by Zero / Taking modulo with zero
 - Compilation Error
 - Time Limit Exceed (TLE)
- Input Format:
 - Example: First line contains 2 integers (i_1, i_2) and a character (c_1).
- Output Format:
 - Example: Print character c_1 for $(i_1 + i_2)$ times. If $i_1 = 3, i_2 = 2, c_1 = 'a'$
Output: `aaaaa`

PROBLEM 1

A soldier wants to buy w bananas in the shop. He has to pay k dollars for the first banana, $2k$ dollars for the second one and so on (in other words, he has to pay $i \cdot k$ dollars for the i -th banana).

He has n dollars. How many dollars does he have to borrow from his friend soldier to buy w bananas?

Input

The first line contains three positive integers k, n, w ($1 \leq k, w \leq 1000, 0 \leq n \leq 10^9$), the cost of the first banana, initial number of dollars the soldier has and number of bananas he wants.

Output

Output one integer — the amount of dollars that the soldier must borrow from his friend. If he doesn't have to borrow money, output 0.

Examples

input

Copy

3 17 4

output

Copy

13

<https://codeforces.com/problemset/problem/546/A>

PROBLEM 2

Allen has a LOT of money. He has n dollars in the bank. For security reasons, he wants to withdraw it in cash (we will not disclose the reasons here). The denominations for dollar bills are 1, 5, 10, 20, 100. What is the minimum number of bills Allen could receive after withdrawing his entire balance?

Input

The first and only line of input contains a single integer n ($1 \leq n \leq 10^9$).

Output

Output the minimum number of bills that Allen could receive.

Examples

input	Copy
125	
output	Copy
3	

input	Copy
43	
output	Copy
5	

<https://codeforces.com/problemset/problem/996/A>

PROBLEM 3

Vasily the Programmer loves romance, so this year he decided to illuminate his room with candles.

Vasily has a candles. When Vasily lights up a new candle, it first burns for an hour and then it goes out. Vasily is smart, so he can make b went out candles into a new candle. As a result, this new candle can be used like any other new candle.

Now Vasily wonders: for how many hours can his candles light up the room if he acts optimally well? Help him find this number.

Input

The single line contains two integers, a and b ($1 \leq a \leq 1000$; $2 \leq b \leq 1000$).

Output

Print a single integer — the number of hours Vasily can light up the room for.

Examples

input	Copy
4 2	
output	Copy
7	
input	Copy
6 3	
output	Copy
8	

<https://codeforces.com/problemset/problem/379/A>

PROBLEM 4

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 $1 + 2 + \dots + (i - 1) + i$ cubes.

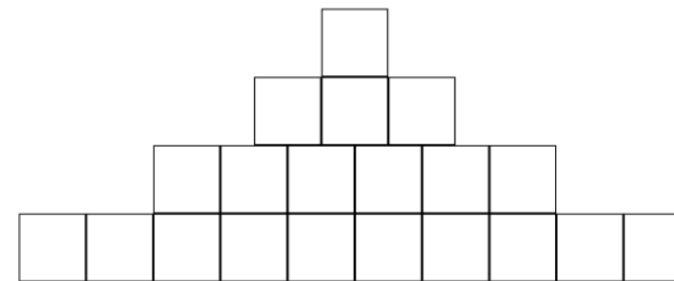
Vanya wants to know what is the maximum height of the pyramid that he can make using the given cubes.

Input

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

Output

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



Examples

input

Copy

1

output

Copy

1

input

Copy

25

output

Copy

4

<https://codeforces.com/problemset/problem/492/A>



Try yourself :

<https://codeforces.com/problemset/problem/4/A>

<https://codeforces.com/problemset/problem/50/A>

<https://codeforces.com/problemset/problem/617/A>

<https://codeforces.com/problemset/problem/268/A>

<https://codeforces.com/problemset/problem/1370/A>

<https://codeforces.com/problemset/problem/520/B>

Try yourself :

<https://www.hackerrank.com/challenges/staircase/problem>

<https://www.hackerrank.com/challenges/kangaroo/problem>

<https://www.hackerrank.com/challenges/drawing-book/problem>

<https://www.hackerrank.com/challenges/find-digits/problem>

<https://www.hackerrank.com/challenges/save-the-prisoner/problem>

LOCAL, GLOBAL & STATIC

- **Local Variable:** Variables that are defined within the body of the function or a block are local to that function or block and are called Local Variables.
- **Global Variable:** Any variable that is defined outside any function are called global variables. All the functions in the program can access and modify these variables. They are automatically initialized to 0 at the time of declaration.
- **Static Variable:** Any variable defined using keyword static before its type is called a static variable. These variables are initialized only once and retain their value between function calls.

C rough.c × ...

```
C rough.c > main()
1  #include <stdio.h>
2
3  void staticVsLocal() {
4      int a = 10;    // Local Variable
5      static int b = 10; // Static Variable
6
7      printf("a = %d b = %d\n", a, b);
8      a++;
9      b++;
10 }
11
12 int main() {
13
14     staticVsLocal();
15     staticVsLocal();
16     staticVsLocal();
17
18     return 0;
19 }
```

TERMINAL DEBUG CONSOLE PROBLEMS OUTPUT

```
aceezer@aceezer:~/Desktop/Web/CheggAns$ ./a.out
a = 10 b = 10
a = 10 b = 11
a = 10 b = 12
aceezer@aceezer:~/Desktop/Web/CheggAns$
```

C rough2.c × ...

```
C rough2.c > main()
1  #include <stdio.h>
2
3  // Global variables
4  int a = 8;
5  int b;
6
7  void LocalVsGlobal() {
8      int a = 10; // Local variable
9
10     printf("In Function: a = %d b = %d\n", a, b);
11 }
12
13 int main() {
14
15     printf("In Main: a = %d b = %d\n", a, b);
16     LocalVsGlobal();
17
18     return 0;
19 }
```

1: bash, bash + [] [] [] [] [] []

```
aceezer@aceezer:~/Desktop/Web/CheggAns$ ./a.out
In Main: a = 8 b = 0
In Function: a = 10 b = 0
aceezer@aceezer:~/Desktop/Web/CheggAns$
```