

1 . Fafal and Hamed after mathematic exam

Today Hamed and Fafal have math exam.

After they have finished the exam . they are betting on answer of the one of the questions.

Fafal has f oshlugh and Hamed has h oshlugh and they are betting on t oshlugh (oshlugh is the kind of the money unit) .

Now we want to determine the outcome of their bet.

The problem is :

There are 3 numbers that the third one is the mathematic operation. It performed the operation on first and second number .

Operation can be 1,2,3 or 4 . That 1 determine + , 2 determine - , 3 determine * and 4 determine /.

Input :

In the first line three numbers will give you that they are f,h,t ($0 < f,h,t \leq 10^9$; $t \leq f,h$)

In the second line we have three numbers (a,b,c) that they are in problem definition.

($0 \leq a,b \leq 10^9$, $1 \leq c \leq 4$)

In the third line we have 2 numbers that they are Fafal's and Hamed's answers.

It is guaranteed that the problem have answer.

Output :

2 numbers must be printed . the first one is Fafal's money , and the second one is Hamed's money after their betting.

Ex 1	
Input	5 4 2 3 7 1 10 -4
output	7 2

Ex 2	
Input	12 15 12 4 5 3 9 20
output	0 27

Ex 1 :

Fafal's money is 5, Hamed's is 4 and they are betting on 2 oshlughs.

The problem was 3+7 and Fafal is right. So Hamed must give him 2 oshlughs.

2 . Donatello and Death Hole

Donatello is the one of the TMNT members.

He fell in deep hole, that it's cover is not fully closed . There are poison blade on it and only way to get out , that he must reach exactly to the edge of the hole and absolutely he must not touch the poison blades.

For getting out, he has to jump . With every jump he can climb up 2 or 3 meters. Height of hole is h meters and he has climbed for a meters and stucked to wall .

As you know, Donatello is very smart and now he wants to calculate the max and the min count of jumps need to survive.

Input :

One line that include 2 numbers h , a ($0 < a, h \leq 10^9$; $a \leq h$)

Output :

2 numbers should be printed . min and max count.

If he couldn't get out the hole , it should be printed -1 .

Ex 1	
Input	12 3
Output	3 4

Ex 2	
Input	8 6
output	1 1

Ex 1 :

To reach top of the hole by the min jumps :

3 -- (3 heights jump) --> 6 -- (3 heights jump) --> 9 -- (3 heights jump) --> 12

And for max jumps :

3 -- (2heights jump) --> 5 -- (3heights jump) --> 8 -- (2heights jump) --> 10 -- (2heights jump) --> 12

Ex 2 :

To reach top of the hole by the min jumps :

6 -- (2 heights jump) --> 8

And for max jumps :

6 -- (2 heights jump) --> 8

3 . Mehdi's Workplace

Mahdi wants to change the decoration of his own workplace. the work place has n meter width and 3 machines. he wants to change the position of the machines but he cant turn them. he just can move them in only 4 main directions.

now we want to know in how many ways we can move the machines?



Input :

First line include n (width of the workplace). ($0 < n \leq 10^9$)

Second line include 3 integers a,b,c that shows the widths of the machines. ($0 < a,b,c \leq n$)

Output :

One integer that determines the ways that we can move the machines.

Ex 1	
input	7 2 3 1
output	5

4 . Fibonacci base

Yashar believes that every integer could be written with sequence of 1 & 0. the i 'th number of this sequence is the same number in fibonacci sequence. and for getting the result we must sum only The digits wich corresponding digits in fibonacci sequence is one.

But Mohammad disagrees with Yashar's opinion. We might have not fibonacci sequence for showing every numbers. now we want you to write a program to solve the problem.

Input :

A positive integer n , which should be written in fibonacci base. ($0 \leq n \leq 10^9$)

Output :

A sequence created from 0 & 1 that shows the input number in fibonacci base.

If there is more than one answer you can print any of them . (You can't print leading zeros in answer).

If you can not find any answer print -1.

Ex 1	
input	15
output	100010

Ex 2	
input	7
output	1010

Ex 3	
input	22
output	1000001

Attention :

fibonacci sequence in here starts from it's third member

1 , 2 , 3 , 5 , 8 , 13 , 21 , ...

Ex 1 : According to above attention , we can write 15 in two ways :

$$15 \Rightarrow 100010 = (1*13) + (0*8) + (0*5) + (0*3) + (1*2) + (0*1) = 13 + 2$$

$$15 \Rightarrow 11010 = (1*8) + (1*5) + (0*3) + (1*2) + (0*1) = 8 + 5 + 2$$

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