How many Fibs?

Time Limit: 1000MS **Memory Limit:** 65536K

Description

Recall the definition of the Fibonacci numbers:

```
f1 := 1

f2 := 2

fn := f_{n-1} + f_{n-2}    (n>=3)
```

Given two numbers a and b, calculate how many Fibonacci numbers are in the range [a,b].

Input

The input contains several test cases. Each test case consists of two non-negative integer numbers a and b. Input is terminated by a=b=0. Otherwise, $a<=b<=2^{64}$. The numbers a and b are given with no superfluous leading zeros.

Output

For each test case output on a single line the number of Fibonacci numbers fi with a<=fi<=b.

Sample Input

```
10 100
1234567890 9876543210
0 0
```

Sample Output

```
5
4
```