How many Fibs

Recall the definition of the Fibonacci numbers:

$f_1 := 1$
$f_2 := 2$
$f_n := f_{n-1} + f_{n-2}$ (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, $a<=b<=10^{100}$. 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 f_i with $a<=f_i<=b$.

Example

Input:

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

Output:

```
5
4
```