6.6.1 How Many Fibs?

PC/UVa IDs: 110601/10183, Popularity: B, Success rate: average Level: 1

Recall the definition of the Fibonacci numbers:

f1 := 1
f2 := 2
fn := fn−1 + fn−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 ≤ 10100*. 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
```