Recall the definition of the Fibonacci numbers:

$$\begin{aligned} f_1 &:= 1 \\ f_2 &:= 2 \\ f_n &:= f_{n-1} + f_{n-2} \qquad (n \geq 3) \end{aligned}$$

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, $a \leq b \leq 10^{100}$. 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 $a \leq f_i \leq b$.

Sample Input

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

Sample Output

```
5
4
```