Recall the definition of the Fibonacci numbers:

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

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, $a \le b \le 10^{100}$. 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

4