Problem B
EvenOdd
Problem ID: evenodd

Consider the following function $f(X)$, which takes a single positive integer as argument, and returns an integer.

```
function f(X):
    iterations := 0
    while X is not 1:
        if X is even:
            divide X by 2
        else:
            add 1 to X
        add 1 to iterations
    return iterations
```

It can be shown that for any positive integer X, this function terminates. Given an interval $[L, R]$, compute the sum

$$S = f(L) + f(L + 1) + \cdots + f(R - 1) + f(R) \ .$$

Input

The first and only line of input contains two integers L and R ($1 \le L \le R \le 10^{18}$).

Output

Output the result S modulo the prime $10^9 + 7$.

Sample Input 1	Sample Output 1
1 127	1083

Sample Input 2	Sample Output 2
74 74	11