FIBO BIT

Count the number of numbers between two 64 bit numbers a, b that have the sum of their bits equal to a fibonacci number. E.g Between 15 and 17 there are two numbers that have sum of bits equal to a fibonacci number.

15: 1111 sum=4
16: 10000 sum=1 (fibonacci)
17:10001 sum=2 (fibonacci)

Input

The 2 numbers start and end

start < end < 10^18

Output

The number of such numbers between both start and end inclusive

Example

Input:

15 17

Output:

2