SPOJ Problem Set (classical)

3979. Whirligig number

Problem code: MZVRK

English   Vietnamese

By removing all digits left of the rightmost digit one in the binary
representation of some integer, we get what is called the "whirligig" of that number.
For example, the whirligig of 6 i.e. (110)2 is 2 i.e. (10)2, and the
whirligigof 40 i.e. (101000)2 is 8 i.e. (1000)2.

Write a program that will calculate the sum of the whirligig of all numbers
between two given numbers A and B (inclusive).

Input

First and only line of input contains two integers A and B, $1 <= A <= B <= 10^{15}$.

Output

First and only line of output should contain the sum from the problem statement.
Note: the result will fit into the 64-bit signed integer type.

Sample

input

176 177

output

17

input

5 9

output

13

input

25 28

output

8