2s Complement

One of the basics of Computer Science is knowing how numbers are represented in 2's complement. Imagine that you write down all numbers between A and B in 2's complement representation using 32 bits. How many 1's will you write down in all ?

Input:

The first line contains the number of test cases T. Each of the next T lines contains two integers A and B.

Output:

Output T lines, one corresponding to each test case.

Constraints:

-2^31 <= A <= B <= 2^31 - 1

Sample Input:

3

-2 0

-3 4

-1 4

Sample Output:

63

99

37

Explanation:

For the first case, -2 contains 31 1's followed by a 0 whereas -1 contains 32 1's. Thus the total is 63.

For the second case, the answer is 31 + 31 + 32 + 0 + 1 + 1 + 2 + 1 = 99