2's complement

Understanding 2*'s complement* representation is fundamental to learning about Computer Science. Let's say you wrote down the 2's complement for each 32-bit integer in the inclusive range from A to B; how many 1's would you write down in all?

Input Format

The first line contains T, the number of test cases.
The T subsequent lines each contain two space-separated integers, A and B, respectively.

Constraints

- $T \leq 1000$
- $-2^{31} \leq A \leq B \leq 2^{31} - 1$

Output Format

On a new line for each of the T test cases, print the number of 1's in the 32-bit 2's complement representation for integers in the inclusive range from A to B.

Sample Input

```
3
-2 0
-3 4
-1 4
```

Sample Output

```
63
99
37
```

Explanation

Test Case 0:
-2 contains 31 ones followed by a zero.
-1 contains 32 ones.
0 contains 0 ones.
$31 + 32 + 0 = 63$, so we print 63 on a new line.

Test Case 1:
$31 + 31 + 32 + 0 + 1 + 1 + 2 + 1 = 99$, so we print 99 on a new line.

Test Case 2:
$32 + 0 + 1 + 1 + 2 + 1 = 37$, so we print 37 on a new line.