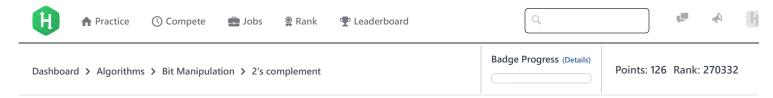
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# 2's complement ■



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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  $m{T}$  subsequent lines each contain two space-separated integers,  $m{A}$  and  $m{B}$ , respectively.

#### **Constraints**

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

#### **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**

- -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.

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```
Current Buffer (saved locally, editable) & 🗘
                                                                                           Java 7
 1 ▼ import java.io.*;
    import java.util.*;
   import java.text.*;
 3
    import java.math.*;
    import java.util.regex.*;
 7 ▼ public class Solution {
 8
 9 ▼
         public static void main(String[] args) {
10 ▼
             /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should be named Solution. */
11
    }
12
                                                                                                                     Line: 1 Col: 1
1 Upload Code as File
                      Test against custom input
                                                                                                        Run Code
                                                                                                                     Submit Code
```

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