Xorry Pairs

Problem Submissions Discussions

Time Limit: 1s, Memory Limit: 512MB

Problem Statement

You are given T test cases. For each test case, you are given an integer N. A pair of integers (A, B) is called a Xorry Pair if all the following conditions are satisfied:

- A ⊕ B = N, where ⊕ denotes the bitwise XOR operation.
- A + B = N, where + denotes the Addition.
- 0 ≤ A ≤ B ≤ N.
- The pair must be unique — pairs (A, B) and (B, A) are considered the same and should be counted only once.

Your task is to determine the number of distinct Xorry pairs for the given integer N.

Input Format

- The first line contains an integer T — the number of test cases.
- The next T lines each contain a single integer N.

Constraints

- $1 \leq T \leq 10^5$
- $0 \leq N \leq 10^{18}$

Output Format

- For each test case, print a single integer — the number of distinct Xorry pairs.

Sample Input 0

```
3
5
1
3
```

Sample Output 0

```
2
1
2
```

Explanation 0

- For N = 5, Valid Xorry pairs:(0, 5), (1, 4)
- FOr N = 1, Only valid pair:(0, 1)
- For N = 3, Valid pairs:(0, 3), (1, 2)

C++

```cpp
#include <map>
#include <set>
#include <list>
#include <cmath>
#include <ctime>
#include <deque>
#include <queue>
#include <stack>
#include <string>
#include <bitset>
#include <cstdio>
#include <limits>
#include <vector>
#include <climits>
#include <cstring>
#include <cstdlib>
#include <fstream>
#include <numeric>
#include <sstream>
#include <iostream>
#include <algorithm>
#include <unordered_map>

using namespace std;
int main() {
    /* Enter your code here. Read input from STDIN. Print output to STDOUT */
    return 0;
}
```

Line: 1 Col: 1

Upload Code as File Test against custom input Run Code Submit Code