# Sum vs XOR

Given an integer n, find each x such that:

- $0 \le x \le n$
- $n+x=n\oplus x$

where  $\oplus$  denotes the bitwise XOR operator. Return the number of x's satisfying the criteria.

## Example

n = 4

There are four values that meet the criteria:

- $4+0=4\oplus 0=4$
- $4+1=4\oplus 1=5$
- $4+2=4\oplus 2=6$
- $4+3=4 \oplus 3=7$

Return 4.

## **Function Description**

Complete the sumXor function in the editor below.

sumXor has the following parameter(s):

- int n: an integer

#### Returns

- int: the number of values found

### **Input Format**

A single integer, n.

#### **Constraints**

•  $0 \le n \le 10^{15}$ 

#### **Subtasks**

ullet  $0 \le n \le 100$  for 60% of the maximum score.

## **Output Format**

### Sample Input 0

5

# Sample Output 0

2

# **Explanation 0**

For n=5, the  $oldsymbol{x}$  values  $oldsymbol{0}$  and  $oldsymbol{2}$  satisfy the conditions:

• 
$$5+0=5$$
,  $5\oplus 0=5$ 

• 
$$5+2=7$$
,  $5\oplus 2=7$ 

# Sample Input 1

10

# Sample Output 1

4

## **Explanation 1**

For n=10, the  $oldsymbol{x}$  values 0,1,4, and  $oldsymbol{5}$  satisfy the conditions:

• 
$$10 + 0 = 10$$
,  $10 \oplus 0 = 10$ 

• 
$$10 + 1 = 11$$
,  $10 \oplus 1 = 11$ 

• 
$$10 + 4 = 14$$
,  $10 \oplus 4 = 14$ 

• 
$$10+5=15$$
,  $10\oplus 5=15$