

Project Euler #169: Exploring the number of different ways a number can be expressed as a sum of powers of 2.

This problem is a programming version of [Problem 169](#) from [projecteuler.net](#)

Define $f(0) = 1$ and $f(n)$ to be the number of different ways n can be expressed as a sum of integer powers of 2 using each power no more than twice.

For example, $f(10) = 5$ since there are five different ways to express 10:

$1 + 1 + 8$
 $1 + 1 + 4 + 4$
 $1 + 1 + 2 + 2 + 4$
 $2 + 4 + 4$
 $2 + 8$

What is $f(n)$ for a given n ?

Input Format

One integer is given on first line representing n .

Constraints

- $1 \leq n < 10^{27}$

Output Format

Print one integer which is the answer to the problem.

Sample Input 0

10

Sample Output 0

5