Problem F
Watch Out For Those Hailstones!
Problem ID: hailstone

Your solution to this problem must use a recursive function, using the definition presented in the problem. Any other solution will receive zero points, even if the testing system judges it correctly.

An interesting theory in mathematics is that there is a sequence generator that, given any positive integer as the starting point, always ends with the number 1. Although this theory has never been proven, the conjecture is known as the Collatz Conjecture (named after Lothar Collatz, who posed the idea in 1937). Given an integer, $n \geqslant 1$, this conjecture pertains to the sequence $h(n)$, which we recursively define as follows:

- If $n = 1$, the sequence is composed of a single integer: 1
- If n is even, the sequence is composed of n followed by sequence $h(n/2)$
- If n is odd, the sequence is composed of n followed by sequence $h(3 \cdot n + 1)$

For example, the following are the sequences for the numbers 5 and 7:

$$h(5) = (5, 16, 8, 4, 2, 1)$$
$$h(7) = (7, 22, 11, 34, 17, 52, 26, 13, 40, 20, 10, 5, 16, 8, 4, 2, 1)$$

The $h(n)$ sequence is commonly known as the *hailstone sequence*, because of its nature of going up and down like a hailstone in a cloud before eventually falling to Earth. In this problem, you will calculate the *sum* of all the values in a hailstone sequence. Using the sequences above, the sum of $h(5)$ is 36 and the sum of $h(7)$ is 288.

As a reminder, your solution to this problem must use a recursive function. The recursive function must be based on the definition presented above. Any other solution will receive zero points, even if the testing system judges it correctly.

Note: You *are* allowed to add up the numbers iteratively, as long as the $h(n)$ sequence is computed recursively.

Input

The input contains a single positive integer, n ($0 < n \leqslant 2^{32} - 1$).

Output

The output contains a single integer: the sum of all the values in $h(n)$. You may assume that this sum will fit in an unsigned 64-bit integer.

Sample Input 1	Sample Output 1
5	36

Sample Input 2	Sample Output 2
7	288