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# Strange Counter

by Shafaet

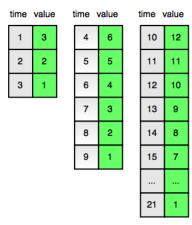| Problem | Submissions | Leaderboard | Discussions | Editorial |

Bob has a *strange counter*. At the first second, $t = 1$, it displays the number $3$. At each subsequent second, the number displayed by the counter decrements by $1$.

The counter counts down in cycles. In the second after the counter counts down to $1$, the number becomes $2\times$ the initial number for that countdown cycle and then continues counting down from the new initial number in a new cycle. The diagram below shows the counter values for each time $t$ in the first three cycles:



Given a time, $t$, find and print the value displayed by the counter at time $t$.

**Input Format**

A single integer denoting the value of $t$.

**Constraints**

- $1 \leq t \leq 10^{12}$

**Subtask**

- $1 \leq t \leq 10^{5}$ for **60%** of the maximum score.

**Output Format**

Print the value displayed by the strange counter at the given time $t$.

**Sample Input**

4

**Sample Output**

6

**Explanation**

Time $t = 4$ marks the beginning of the second cycle in which the counter displays a number that is double the initial number displayed at the beginning of the previous cycle (i.e., $2 \times 3 = 6$). This is also shown in the diagram in the *Problem Statement* above.

**Submissions:** 11247
**Max Score:** 30
**Difficulty:** Easy

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★★★★★

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C#

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```csharp
using System;
using System.Collections.Generic;
using System.IO;
using System.Linq;
class Solution {

    static void Main(String[] args) {
        long t = long.Parse(Console.ReadLine());

         long total = 0;
        long n = 3;

        while (total < t)
        {
            total += n;
            n *= 2;
        }
        n /= 2;

        Console.WriteLine(total - n + (n - t) + 1);


    }
}
```

Line: 14 Col: 10

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### Congrats, you solved this challenge!

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| ✔ Test Case #3 | ✔ Test Case #4 | ✔ Test Case #5 |
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