



Strange Counter

by [Shafaet](#)

Problem

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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**× 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:

| time | value | time | value | time | value |
|------|-------|------|-------|------|-------|
| 1 | 3 | 4 | 6 | 10 | 12 |
| 2 | 2 | 5 | 5 | 11 | 11 |
| 3 | 1 | 6 | 4 | 12 | 10 |
| | | 7 | 3 | 13 | 9 |
| | | 8 | 2 | 14 | 8 |
| | | 9 | 1 | 15 | 7 |
| | | | | ... | ... |
| | | | | 21 | 1 |

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

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.

[f](#) [t](#) [in](#)Submissions: [18963](#)


Max Score: 30

Difficulty: Easy

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☆☆☆☆☆

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Current Buffer (saved locally, editable)  

Java 7   

```
1 import java.io.*;
2 import java.util.*;
3 import java.text.*;
4 import java.math.*;
5 import java.util.regex.*;
6
7 public class Solution {
8
9     public static void main(String[] args) {
10         Scanner in = new Scanner(System.in);
11         int t = in.nextInt();
12     }
13 }
14
```

Line: 1 Col: 1

 [Upload Code as File](#)☐ Test against custom input

Run Code

Submit Code

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