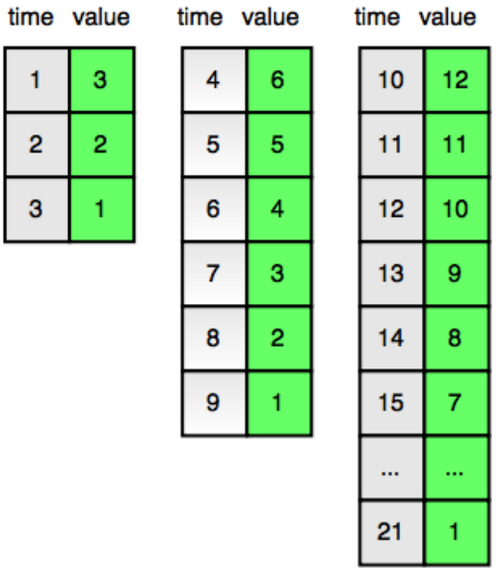
Strange Counter

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:



time	value
1	3
2	2
3	1

time	value
4	6
5	5
6	4
7	3
8	2
9	1

time	value
10	12
11	11
12	10
13	9
14	8
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

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4
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Sample Output

```
6
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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.