Utopian Tree

by dheeraj

The Utopian Tree goes through *2* cycles of growth every year. Each spring, it *doubles* in height. Each summer, its height increases by *1* meter.

Laura plants a Utopian Tree sapling with a height of *1* meter at the onset of spring. How tall will her tree be after N growth cycles?

Input Format

The first line contains an integer, T, the number of test cases.
T subsequent lines each contain an integer, N, denoting the number of cycles for that test case.

Constraints
$1 \leq T \leq 10$
$0 \leq N \leq 60$

Output Format

For each test case, print the height of the Utopian Tree after N cycles. Each height must be printed on a new line.

Sample Input

```
3
0
1
4
```

Sample Output

```
1
2
7
```

Explanation

There are *3* test cases.

In the first case ($N = 0$), the initial height ($H = 1$) of the tree remains unchanged.

In the second case ($N = 1$), the tree doubles in height and is 2 meters tall after the spring cycle.

In the third case ($N = 4$), the tree doubles its height in spring ($H = 2$), then grows a meter in summer ($H = 3$), then doubles after the next spring ($H = 6$), and grows another meter after summer ($H = 7$). Thus, at the end of 4 cycles, its height is 7 meters.

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If - Else statements

Closed Form

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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         for(int a0 = 0; a0 < t; a0++){
13             int n = in.nextInt();
14         }
15     }
16 }
17
```

Line: 1 Col: 1

Upload Code as File

Test against custom input

Run Code

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