Utopian Tree

HackerRank

Problem Statement

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.