# **Utopian Tree**

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.

A Utopian Tree sapling with a height of 1 meter is planted at the onset of spring. How tall will the tree be after n growth cycles?

For example, if the number of growth cycles is n = 5, the calculations are as follows:

Period	Height
0	1
1	2
2	3
3	6
4	7
5	14

### **Function Description**

Complete the *utopianTree* function in the editor below.

utopianTree has the following parameter(s):

• *int n*: the number of growth cycles to simulate

#### Returns

• *int:* the height of the tree after the given number of cycles

#### **Input Format**

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

#### Constraints

 $egin{array}{l} 1 \leq t \leq 10 \ 0 \leq n \leq 60 \end{array}$ 

#### Sample Input

1 2 7

## Sample Output

1/2

#### 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 (n = 1, H = 2), then grows a meter in summer (n = 2, H = 3), then doubles after the next spring (n = 3, H = 6), and grows another meter after summer (n = 4, H = 7). Thus, at the end of 4 cycles, its height is 7 meters.