Lucas numbers X23272_en

The *Lucas numbers* $L_0, L_1, L_2, \ldots$ are closely related to the Fibonacci numbers. For any non-negative integer $n \geq 0$, the nth Lucas number is defined as

$$L_n = \begin{cases} 2 & \text{if } n = 0, \\ 1 & \text{if } n = 1, \\ L_{n-1} + L_{n-2} & \text{if } n > 1. \end{cases}$$

Input

The input starts with an integer C, the number of cases. On each of the following C lines is a single integer n which satisfies $0 \leq n \leq 30$.

Output

For each case n, output the Lucas number L_n on a single line.

Sample input 1

```
4
0
1
5
10
```

Sample output 1

```
2
1
11
123
```

Problem information

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