Recursion: Davis' Staircase

Davis has s staircases in his house and he likes to climb each staircase 1, 2, or 3 steps at a time. Being a very precocious child, he wonders how many ways there are to reach the top of the staircase.

Given the respective heights for each of the s staircases in his house, find and print the number of ways he can climb each staircase on a new line.

Input Format

The first line contains a single integer, s, denoting the number of staircases in his house.
Each line i of the s subsequent lines contains a single integer, n, denoting the height of staircase i.

Constraints

- $1 \leq s \leq 5$
- $1 \leq n \leq 36$

Subtasks

- $1 \leq n \leq 20$ for 50% of the maximum score.

Output Format

For each staircase, print the number of ways Davis can climb it in a new line.

Sample Input

```
3
1
3
7
```

Sample Output

```
1
4
44
```

Explanation

Let's calculate the number of ways of climbing the first two of the Davis' $s = 3$ staircases:

1. The first staircase only has $n = 1$ step, so there is only one way for him to climb it (i.e., by jumping 1 step). Thus, we print 1 on a new line.
2. The second staircase has $n = 3$ steps and he can climb it in any of the four following ways:
    1. $1 \rightarrow 1 \rightarrow 1$
    2. $1 \rightarrow 2$
    3. $2 \rightarrow 1$
    4. 3

Thus, we print 4 on a new line.