UVa Online Judge

11091 How many Knight Placing?

You are given a $6 * n$ chessboard. Yes it is not a regular chessboard. The number of columns in this chessboard is variable. In each of the columns you have to place exactly 2 knights. So you have to place total $2 * n$ knights. You have to count the number of valid placing of these $2 * n$ knight. A placing is invalid if any of the 2 knights attack each other. Those who are not familiar with knight moves "A knight in cell(x, y) attacks the knights in the cell $(x \pm 2, y \pm 1)$ and cell $(x \pm 1, y \pm 2)$".

Input

The first line of the input contains a single integer T indicating the number of test cases. Each test case contains a single integer n.

Output

For each test case output an integer the number of valid placing. The integer may be very large. So just output the result% 10007.

Constraints

- $T \leq 15$
- $1 \leq n < 1000000000$

Sample Input

```
4
1
10
100
1000
```

Sample Output

```
15
178
30
8141
```