

# Four colors

Let there be given  $n$  points:  $P_1, P_2 \dots P_n$  arranged in this order on a line. We would like to color them using four colors: white, black, red, and blue, in such a way that for every three consecutive points it is true that either:

- 1. the colors of these three points are pairwise distinct, or
- 2. the color of some point is white.

## Input

An integer  $T$ , denoting the number of testcases ( $T < 100000$ ). In each line you are given one positive integer ( $n < 1000000000$ ). There are 5 input sets.

## Output

Find the number of possible colorings of the  $n$  points. Since the answer can be very big, output only the answer modulo 1000000007.

## Example

**Input:**

```
4
1
2
3
1000
```

**Output:**

```
4
16
43
283570349
```

**Warning: large input/output data, be careful with certain languages**

**Warning: A naive algorithm will probably solve only the first input set.**