Girlfriend & Necklace

Mr. X wants to buy a necklace for his girlfriend. The available necklaces are bi-colored (red and blue beads).

Mr. X desperately wants to impress his girlfriend and knows that she will like the necklace only if **every prime length continuous sub-sequence of beads in the necklace** has more or equal number of red beads than blue beads.

Given the number of beads in the necklace N, Mr. X wants to know the number of all possible such necklaces.

Note: - It is given that the necklace is a single string and not a loop.

Input Format
The first line of the input contains an integer *T*, the number of testcases.
T lines follow, each line containing *N*, the number of beads in the necklace.

Constraints
$1 \leq T \leq 10^4$
$2 \leq N \leq 10^{18}$

Output Format
For each testcase, print in a newline, the number of such necklaces that are possible. If the answer is greater than or equal to 10^9+7, print the answer modulo (%) 10^9+7.

Sample Input

```
2
2
3
```

Sample Output

```
3
4
```

Explanation

For the first testcase, valid arrangement of beads are

```
BR RB RR
```

For the second testcase, valid arrangement of beads are

```
BRR RBR RRR RRB
```