Fibo and non fibo

The problem is simple.

Find **(a^b) % MOD**

where ,

a = Nth **non-fibonacci** number

b = (Nth **fibonacci** number)%MOD

MOD = 10^9+7

Consider fibonacci series as 1,1,2,3,....

Note : It is guaranteed that Nth non-fibonacci number will always be less than MOD value for every value of N used.

Input

First line contains **T** , the number of test cases.

Each next T lines contains a number **N**.

Output

Print T lines of output where each line corresponds to the required answer.

Announcement: Constraints are updated. Sorry for inconvenience occurred.

Example

Input:

```
3
3
2
1
```

Output:

```
49
6
4
```

Explanation

For N=3 : 3rd non fibo number =7, 3rd fibo number=2. ans= (7^2) %MOD =49

For N=2 : 2nd non fibo number =6, 2nd fibo number=1. ans=(6^1) %MOD=6

For N=1 : 1st non fibo number =4, 1st fibo number=1. ans= (4^1) %MOD =4

Constraints

1<=T<=100000

1<=N<=9*10^8

Note: Test cases have been updated and costraints are changed. Those who get TLE or WA are suggested to resubmit. GOOD LUCK there.