Power of Phi

Vertu was very impressed by the golden ratio φ=(1+√5)/2 and about it occurring in nature and all that. He now begins to wonder if any non negative integral power of φ is also special. Since he does not like working with decimals, he decided to approximate the positive integral power of φ to its closest integer. Help him by printing the closest integer to $φ^n$, given n.

Input and Output
The first line contains t, the number of test cases. t lines follow, each containing one positive integer n. For each of these integers, print the closest integer to $φ^n$. If you think there are two closest possible integers, print either of them. Print the answer modulo(10^9+7).

Constraints

t<=500

0<=n<=10^6

Example

Input:

2

1

3

Output:
2

4