After the intense tennis session Vasilena told Deni about her favourite type of sequences – the penguin ones. In order to be a penguin sequence, it has to contain only the Latin letters D and V. Another condition is that when splitting the sequence in subsequences of equal letters (adjacent subsequences consist of different letters), then the subsequences with D have even length, whereas the ones with V – odd length. For instance, DDV, V, VVVDD are penguin sequences, but VDVD is not.

What sparked Deni’s interest is how to find the number of penguin sequences of a fixed length N. He knows that you will be able to find it too, so he gives you this task with one more catch – there will be T lengths. Due to the fact that the answer may be too large, you have to output its value modulo $10^{9}+7$.

**Input**

The first line of the file **penguin.in** consists of one integer T – the number of lengths. Each of the next T lines comprise of one number N – the length of the penguin sequence.

**Output**

Print T lines in the file **penguin.out** containing one integer – the number of penguin sequences modulo $10^{9}+7.$

**Constraints**

$$1\leq N\leq 10^{16}$$

$$1\leq T\leq 10^{4}$$

**Time limit: 0.9 sec.**

**Memory limit: 256 MB**

**Sample test**

|  |  |
| --- | --- |
| **Input (penguin.in)** | **Output (penguin.out)** |
| 3235 | 136 |

**Sample explanation**

The penguin sequences with length 5 are: *VVVDD, DDVVV, DDDDV, VDDDD, VVVVV, DDVDD*