Number of zero-xor subsets

You are given an integer N. Consider set $S = \{0, 1, \ldots, 2^N - 1\}$. How many subsets $A \subset S$ with $\bigoplus_{x \in A} x = 0$ ($\oplus$ denotes xor operation) are there?
Print your answer modulo $(10^9 + 7)$.
Note that the xorsum of an empty set is zero!

Input Format
The first line contains one integer T, the number of testcases.
The next T lines contain one integer N each.

Output Format
Output T lines. Each line is one number, answer to the problem modulo $10^9 + 7$.

Constraints
$1 \leq T \leq 10000$
$1 \leq N \leq 10^{18}$

Sample Input

```
2
1
2
```

Sample Output

```
2
4
```

Explanation
For $N = 1$ there are 2 sets - $\varnothing$ and $\{0\}$.
For $N = 2$ there are 4 sets - $\varnothing$, $\{0\}$, $\{1, 2, 3\}$, $\{0, 1, 2, 3\}$.