# Problem A. ZigZag number

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|---|---|
| Input file: | **standard input** |
| Output file: | **standard output** |
| Time limit: | 1 second |
| Memory limit: | 1024 megabytes |

Holidays are coming, Elisa can't wait for more, she already booked her flight to Tokyo where she's planning to meet her friend Kako. She booked on flight AI-41325 departing from Paris and operated by Air IOI.

What's amazing about this flight is that the flight number is what we call a Zig-Zag number. It is a number with Zig-Zag digits, if the number's digits are $a_k a_{k-1} a_{k-2} a_{k-3}...a_1$ then it is a Zig-Zag number if $a_k \neq 0$ and $a_k \geq a_{k-1} \leq a_{k-2} \geq a_{k-3}$ and so on. For example: 656565, 11111 and 41325 are Zig-Zag numbers but 565656, 12345, 54321 and 005132 are not.

Elisa wants to count the number of Zig-Zag numbers with k digits, can you help her? Note that a Zig-Zag number shouldn't have leading zeros.

## Input

The first line of input is the number of test cases $T$. Each test case contains a single line containing a single integer $2 \leq k \leq 10^{18}$

## Output

For each test case output a single line containing the answer $\mod 10^9 + 7$

## Example

| standard input | standard output |
|---|---|
| 3 | 54 |
| 2 | 375 |
| 3 | 2475 |
| 4 | |