Problem H. Nonfibonacci numbers

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Fibonacci numbers — well-known integer sequence, where $F_0 = 0$, $F_1 = 1$ and $F_n = F_{n-1} + F_{n-2}$ for $n > 1$.

Lesha doesn't like this sequence and all the numbers x, such that we can get positive Fibonacci number by crossing out several digits. For example, Lesha doesn't like number 193, because it is possible to cross 9 out and get $F_6 = 13$.

Your task is to find the number of integers from 0 to n which Lesha likes.

Input

The first line contains a single integer t — the number of test cases.

Each of the following t lines contains a single integer n — number, until which you have to count numbers which Lesha likes.

$$1 \le t \le 10$$

$$0 \le n \le 10^{18}$$

Output

Print t lines, each of them should contain a single integer — the answer for the test case.

Example

standard input	standard output
2 4 2019	2 125

Note

In the first test suitable numbers are 0 and 4.