Problem D

Number Sequence

A single positive integer i is given. Write a program to find the digit located in the position i in the sequence of number groups $S_1 S_2 \ldots S_k$. Each group S_k consists of a sequence of positive integer numbers ranging from 1 to k, written one after another.

For example, the first 80 digits of the sequence are as follows:

11212312341234512345612345671234567812345678912345678910123456789101112345678910

Input (filename: D.IN)

The first line of the input file contains a single integer t ($1 \le t \le 10$), the number of test cases, followed by one line for each test case. The line for a test case contains the single integer i ($1 \le i \le 2147483647$)

Output (filename: D.OUT)

There should be one output line per test case containing the digit located in the position i.

Sample Input

```
2
8
3
```

Sample Output

```
2
2
```