

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 $S_1S_2 \dots S_k$. 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

The first line of the input file contains a single integer t ($1 \leq t \leq 25$), the number of test cases, followed by one line for each test case. The line for a test case contains the single integer i ($1 \leq i \leq 2147483647$)

Output

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