

Lucky Numbers

Shrek and Kung Fu Panda once met after having no forthcoming prequels. They quickly noticed that both of them were superstitious and this helped them bond a lot.

Shrek believes that the number 4 is lucky and Kung Fu Panda believes that number 7 is lucky. You being their friend want to list down numbers in increasing order that consist only of 4 or 7.

The first few elements of the list are 4, 7, 44, 47, 74, 77, 444 ... You must answer the n-th (1-based, 4 is the 1st term of the sequence)

Input

The first line contains the number of test-cases T

The following T-lines contains an integer n.

$T \leq 10,000$

$n \leq 1000,000,000$

Output

Print the n-th term in the sequence of lucky numbers

Example

Input:

```
6
1
20
300
4000
50000
1000000000
```

Output:

4

4747

44747747

77774744447

744447747474447

77477744774747744747444444447