Problem B. Broken keypads

You are a cashier working on a coffee shop. Like always, you were working while drinking some coffee, but oops! You spilled all the coffee on the numeric keypad! You quickly wiped the coffee from the keypad, but unfortunately it seems only the keys '1', '3', '4', '5', '7' and '9' are working.

However, you are a cashier, so you have to do your work anyway. You need to write all non-negative integers (0, 1, 2, 3, 4, ...) You were frustrated at first, but as a computer science student, you devised a way to write all numbers using only the keys "134579".

The idea was: If we write all integers consisting of only digits 1, 3, 4, 5, 7 and 9, we can actually order these integers in increasing order. For example, the first few numbers are 1, 3, 4, 5, 7, 9, 11, 13, 14, 15, 17, 19, 31, 33, 34, 35, 37, 39, 41, and so on. So we can assign 0, 1, 2, 3, 4, ... to each of these numbers. For example, 39 is the 18^{th} smallest number, so the integer 17 is assigned to the number 39.

However you are quite lazy, so you want the computer to calculate the assigned integer from the number that you typed. Given a number that only consists of "134579", write a program that calculates the actual non-negative integer that is assigned to that number.

Input

Your input consists of an arbitrary number of records, but no more than 1,000.

Each record is a line that contains a single number n, that only consists of digits '134579'. n is given so that the answer never exceeds 10^{18}.

The end of input is indicated by a line containing only the value -1.

Output

For each input record, print a line that contains a non-negative integer that is assigned to the given number n.

Example

Standard input	Standard output
1 9 39 13579 97531 -1	0 5 17 1907 9012

Time Limit

1 second.