

# Flipper-McFlopper

*Filename: flipper*

The star-bellied Sneetches, they want to have fun  
Blooping and flooping till Sunday is done.  
But one little chore they have left to do:  
Test their Flipper-McFlopper machine for dear Sue.

The Flipper-McFlopper machine is quite grand. It takes in a single, quite large, operand.  
We'll call it  $x$ , and so that you know, what happens inside is recorded below:  
It does this until  $x$  ends in a 7 -- first add 1 or 2, then scale by 11.  
The Flipper-McFlopper should always choose best to stop extra fast for every new test.

Find the fewest number of scales to get to the end,  
assuming optimal picks (each either 1 or 2) for every addend.

## The Problem:

Given  $x$ , calculate the minimum number of scales the Flipper-McFlopper must do before stopping.

## The Input:

The first line of the input file begins with a single, positive integer,  $t$ , representing the number of test cases.  $t$  lines follow, each containing a single integer,  $1 \leq x \leq 10^{18}$ , the input to the machine.

## The Output:

For each test case, output a single line saying "Input # $i$ :  $s$ " without the quotes, where  $i$  is the number of the test case, and  $s$  the minimum number of scales required.

## Sample Input:

```
3
197
4
583920682924895290
```

## Sample Output:

```
Input #1: 0
Input #2: 2
Input #3: 4
```

**Note:** For the first case the Flipper-McFlopper machine will stop instantly since the number already ends in a 7. For the second test case,  $((4 + 1) * 11 + 2) * 11 = 627$ . It will stop here after multiplying twice. It is also possible to stop at 737 after 2 scales.