4. Casting Out Nines

Program Name: Casting.java Input File: casting.dat

Before the days of hand-held calculators, many people used a method of 'casting out nines" to check their arithmetic when adding long columns of numbers. One method of casting out nines is to repeatedly (or recursively) add the digits in an integer until the sum of the digits is less than nine. The nines were cast out of each addend and added together and then cast out of that sum. Then the nines were cast out of the sum of the integers. The two "casts" were compared and if they were equal, the chances were pretty good that the sum was correct.

You are to write a program that will perform the task of casting out nines on an integer and report the "degree" of the cast. The degree of the cast is the number of times you have to add the digits until the sum is nine or less.

For example, consider the integer 59834467. The sum of its digits, 5+9+8+3+4+4+6+7, is 46, the sum of the digits in 46 is 10 and the sum of the digits in 10 is 1. Therefore, the degree of the cast would be 3.

Input

The first line of input will contain a single integer `n` that indicates the number of integers in the data file. Each of the following `n` lines will contain a single, positive integer no longer than 75 digits.

Output

For each integer input, you will print the degree of the cast for that number.

Example Input File

```
4
999999999
5
12345678991
999
```

Example Output to Screen

```
2
0
3
2
```