

11332 Summing Digits

For a positive integer n , let $f(n)$ denote the sum of the digits of n when represented in base 10. It is easy to see that the sequence of numbers $n, f(n), f(f(n)), f(f(f(n))), \dots$ eventually becomes a single digit number that repeats forever. Let this single digit be denoted $g(n)$.

For example, consider $n = 1234567892$. Then:

$$f(n) = 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 2 = 47$$

$$f(f(n)) = 4 + 7 = 11$$

$$f(f(f(n))) = 1 + 1 = 2$$

Therefore, $g(1234567892) = 2$.

Input

Each line of input contains a single positive integer n at most 2,000,000,000. Input is terminated by $n = 0$ which should not be processed.

Output

For each such integer, you are to output a single line containing $g(n)$.

Sample Input

```
2
11
47
1234567892
0
```

Sample Output

```
2
2
2
2
```

