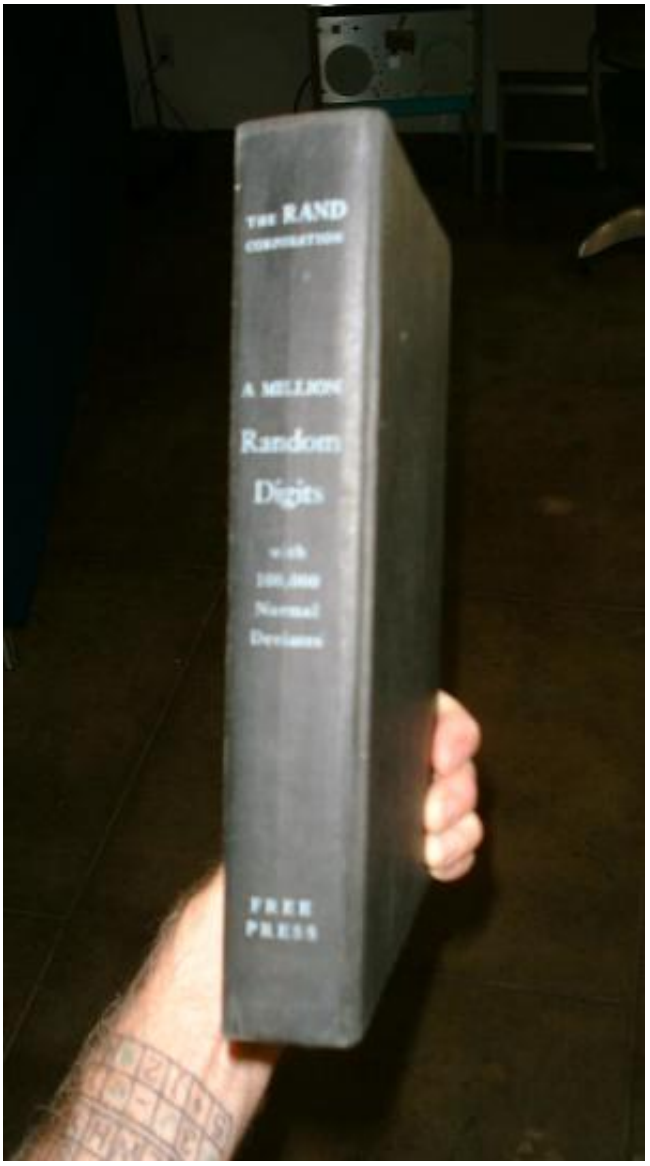
Problem J: Summing Digits



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))), ...` 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`.

Each line of input contains a single positive integer `n` at most 2,000,000,000. For each such integer, you are to output a single line containing `g(n)`. Input is terminated by `n = 0`which should not be processed.

Sample input

```
2
11
47
1234567892
0
```

Output for sample input

```
2
2
2
2
```