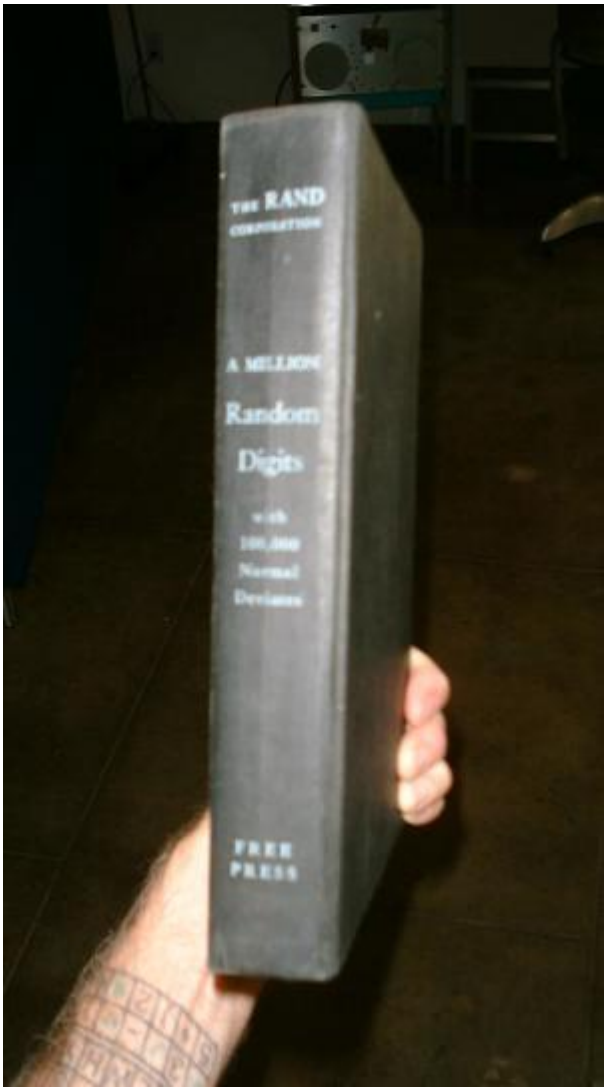
Summing Digits

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

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