Add Digits

Question:

https://leetcode.com/problems/add-digits/

Given an integer num, repeatedly add all its digits until the result has only one digit, and return it.

Example 1:

Input: num = 38
Output: 2
Explanation: The process is
38 --> 3 + 8 --> 11
11 --> 1 + 1 --> 2
Since 2 has only one digit, return it.

Example 2:

Input: num = 0
Output: 0

Approach 1:

Using a separate function that calculates the sum of digits recursively.

Then calculate the sum until we get a sum less than 10.

Solution 1:

```
def addDigits(self,num):
        def check(n):
                a=0
                while(n>0):
                        a+=n%10
                        n//=10
                return a
        while num>9:
                num=check(num)
        return num
```

Time Complexity: O(n)
Space Complexity: O(1)

Approach 2:

Found this through the discussion forum.

We just calculate the remainder by dividing the number by 9 and it will return the sum of digits.

Solution 2:

```
def addDigits(self,num):
        if num==0:
                return 0
        if num%9==0:
                return 9
        return num%9
```

Time Complexity: O(n)
Space Complexity: O(1)