2169. Count Operations to Obtain Zero

Solved

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You are given two **non-negative** integers `num1` and `num2`.

In one **operation**, if `num1 >= num2`, you must subtract `num2` from `num1`, otherwise subtract `num1` from `num2`.

- For example, if `num1 = 5` and `num2 = 4`, subtract `num2` from `num1`, thus obtaining `num1 = 1` and `num2 = 4`. However, if `num1 = 4` and `num2 = 5`, after one operation, `num1 = 4` and `num2 = 1`.

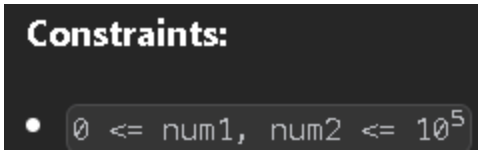
Return *the **number of operations** required to make either* `num1 = 0` *or* `num2 = 0`.

Example 1:

```
Input: num1 = 2, num2 = 3
Output: 3
Explanation:
- Operation 1: num1 = 2, num2 = 3. Since num1 < num2, we
subtract num1 from num2 and get num1 = 2, num2 = 3 - 2 = 1.
- Operation 2: num1 = 2, num2 = 1. Since num1 > num2, we
subtract num2 from num1.
- Operation 3: num1 = 1, num2 = 1. Since num1 == num2, we
subtract num2 from num1.
Now num1 = 0 and num2 = 1. Since num1 == 0, we do not need to
perform any further operations.
So the total number of operations required is 3.
```

Example 2:

```
Input: num1 = 10, num2 = 10
Output: 1
Explanation:
- Operation 1: num1 = 10, num2 = 10. Since num1 == num2, we
subtract num2 from num1 and get num1 = 10 - 10 = 0.
Now num1 = 0 and num2 = 10. Since num1 == 0, we are done.
So the total number of operations required is 1.
```



Python:

```
class Solution:
    def countOperations(self, num1: int, num2: int) -> int:
        def f(x, y, cnt):
            if x==0 or y==0: return cnt
        #    if x<y: return f(y, x, cnt)
            q,r=divmod(x, y)
            return f(y, r, cnt+q)
        return f(num1, num2, 0)
```

JavaScript:

```
var countOperations = function (num1, num2) {
    if (num2 === 0) return 0;                       // done
    if (num1 < num2) countOperations(num2, num1);   // reverse if num1 is small
    return (
        Math.trunc(num1 / num2) +                   // quotient (equals repeated subtraction amount)
        countOperations(num2, num1 % num2)          // call smaller, remainder
    );
};
```

Java:

```
class Solution {
    public int countOperations(int num1, int num2) {
        int count=0;
        while(num1!=0 && num2!=0){
            if(num1<num2){
                count+=num2/num1;
                num2=num2%num1;
            }else{
                count+=num1/num2;
                num1=num1%num2;
            }
        }
        return count;
    }
}
```