WaterBill Project – Putting my usage calculation in a Python function.

In our water meter it's possible to have a value of 999,999,999 before the meter starts all over again.

What happens when the beginning value is 999,999,997 and the ending value is 000,000,005? After the usage passes 3 units, the meter will roll up to zeros and begin again at 1. In our example, the resulting usage is 8 units.

The logic to perform the water usage calculation with the possibility of meter rollover.

1. Calculate the difference between the end meter reading and the start meter reading. The end value will usually be bigger than the start value and will produce a positive difference.
   Difference = end meter reading – start meter reading.
   This difference is the unit usage.

2. For the rollover example, the ending meter reading will be smaller than the beginning value. Subtracting a large value from a small value will result in a negative difference. This is the special exception I must test for in my program.

3. Test if the resulting difference value is positive. If TRUE then my usage results is good and proceed. If FALSE then I must do a special calculation to determine correct usage:
   Unit usage = (1,000,000,00 – start value) + end value

Transfer this logic into code and test. I put the code into a function, so it can be called as needed in the program.

Below is function and a quick test.

```
def waterUsage(beg, end):
    result = int(end) - int(beg)
    if result > 0:
        return result
    else:
        result = (1000000000 - beg) + end
        return result

### TEST PROGRAM #####
start = 999999997
last = 5
## use function waterUsage
usage = waterUsage(start, last)
print(usage)

print ("Script complete.")
```