COMP 4030/6030 Spring 2018. Assignment 5
Due: March 22, 2018 (before class starts)

1. (10 points) Use the arithmetic sum to find the answer for $2 + 3 + 4 + \ldots + 2018$.

2. (10 points) Use the geometric sum to find the answer for $1 + 6 + 6^2 + 6^3 + \ldots + 6^{31}$.

3. (10 points) Use the geometric sum to find the answer for $1/3 + 1/3^2 + 1/3^3 + \ldots + 1/3^{20}$.

4. (10 points) Find the running time equation, T(n), of this python function. You don't have to solve the equation.

```
def  foo(L):                # L is a list
    if L == []:
            return 1
    s = 0
    for x in L:
            for y in L:
                    s = s + x*y
    A = L[0, len(L)//2]
    B = L[len(L)//2, len(L)]
    return foo(A) + s + foo(B)
```

5. (20 points) Use repeated substitution to find the running time of T(n) = 4n + T(n-1). Assume T(1) = 1.

6. (20 points) Use repeated substitution to find the running time of T(n) = 4n + T(n/3). Assume T(1) = 1.

7. (20 points) Use repeated substitution to find the running time of $T(n) = n^2 + 4T(n/2)$. Assume T(1) = 1.

Plagiarism Policy:
You can discuss how to solve the problems with your classmates, but the solution must be your own. Using other people's solution will result in a zero for the assignment and possible additional penalties.

Submission:
Put your name as part of the file name and upload your submission to eCourseware Dropbox. You can submit either Word doc or txt file.