CECS 228 Name:

Lab 8.1 ID: Date:  
Objective:

* Be able to find sum of a sequence.
* Be able to understand matrices and matrix operations.

Exercise 1: Compute each of these sum (if possible)  
a)

b)

c)

d)   
  
  
  
Exercise 2: Find the first five terms of the following sequences (assume n starts at 1 unless otherwise):  
a) an = an-1 + 3an-2, a0 = 1, a1 = 2  
1, 2, 5, 11, 26   
  
b) an = 1+2n  
3, 5, 7, 9, 11  
  
c) an = 5(10)n-1  
5, 50, 500, 5000, 50000  
  
Exercise 3: Find the solution to the following recurrence relations and initial conditions.   
Use an iterative approach  
**a)** *an* = 3*an-1*, *a*0 = 2

*an* = 2(3)n

**b)** *an* = *an-1* + 2, *a*0 = 3

*an* = 3 + 2n

Exercise 4: For each of these lists of integers, provide a simple formula or rule that generates the terms of an integer sequence that begins with the given list. Assuming that your formula or rule is correct, determine the next three terms of the sequence. (Assume that n starts at 0)  
a) 2*,* 16*,* 54*,* 128*,* 250*,* 432*,* 686*, . . .  
an* = 2n3

b) 1,1,2,6,24,120,720,…  
*an* = n!

c) 2*,* 4*,* 16*,* 256*,* 65536*,* 4294967296*, . . .*

*an* =