COSC 600
Class Exercises #1

1. Evaluate the following sums/products

    a. $\sum_{k=1}^{n}(6k + 2)$

    b. $\sum_{k=2}^{n}\dfrac{1}{k*(k+1)}$

    c. $\dfrac{1}{3} + \dfrac{1}{15} + \dfrac{1}{35} + \dfrac{1}{63}\ldots\ldots + \dfrac{1}{399}$

    d. $\prod_{k=2}^{n}(1 - \dfrac{1}{k})$

    e. $\sum_{k=1}^{n}\dfrac{1}{5k}$

    f. $\sum_{i=1}^{n}\sum_{j=1}^{i} 2j$

    g. $\prod_{k=1}^{n} (5 * 2^{k-1})$

2. Find the tenth term and the n-th term of the following sequence
       4, 8, 16, ……

3. Find the n-th term and the first three terms of the arithmetic sequence having $a_4 = 3$, and d=2

4. Find the n-th and the 20th terms of the geometric sequence with $a_5 = \dfrac{5}{4}$ and $a_{12} = 160$.

5. Show that 0.666666666 ……. is equal to $\dfrac{2}{3}$ by use of a geometric series.