§9.3: Infinite Series

1.] Evaluate the following geometric sums:

a.) $\sum_{k=0}^{7} 2^k$

b.) $\sum_{k=3}^{10} \frac{3}{2^k}$

2.] Evaluate the following geometric series:

a.) $\sum_{k=0}^{\infty} 1.1^k$

b.) $\sum_{k=0}^{\infty} e^{-k}$

c.) $\sum_{k=2}^{\infty} 3(-0.75)^k$

d.) $\sum_{k=1}^{\infty} 2^{-3k}$

e.) $\frac{1}{16} + \frac{3}{64} + \frac{9}{256} + \frac{27}{1024} + \cdots$

3.] Evaluate the following telescoping series:

a.) $\displaystyle\sum_{k=1}^{\infty}\left(\frac{1}{k+1}-\frac{1}{k+2}\right)$

b.) $\displaystyle\sum_{k=1}^{\infty}\frac{6}{k^2+2k}$

4.] Evaluate the following series:

a.) $\displaystyle\sum_{k=0}^{\infty}3\left(\frac{2}{5}\right)^k-2\left(\frac{5}{7}\right)^k$

b.) $\displaystyle\sum_{k=1}^{\infty}\left(\arcsin\left(\frac{1}{k}\right)-\arcsin\left(\frac{1}{k+1}\right)\right)$