Math 2312 ***Homework*** *Sec*–2.1 ***Name***:

(**1 – 3**) Find the first four terms and the eight term of the sequence:

1. $\{c_n\} = \left\{ \dfrac{(-1)^n}{n(n+1)(n+2)} \right\}$

2. $\left\{ (n+1)e^n \right\}$

3. $\left\{ \dfrac{3^n}{n^3+1} \right\}$

(**4 – 6**) Find the first five terms of the recursively defined infinite sequence

4. $a_1 = -1, \quad a_2 = 2; \quad a_n = a_{n-1} \cdot a_{n-2}$

5. $a_1 = 3, \quad a_{n+1} = \left(a_n\right)^n$

6. $a_1 = \sqrt{3}, \quad a_n = \sqrt{3 + a_{n-1}}$

(**7 – 8**) Express each sum using summation notation

7. $1+3+5+\ldots+33$

8. $\dfrac{2}{3} - \dfrac{4}{9} + \dfrac{8}{27} - \cdots + (-1)^{12}\left(\dfrac{2}{3}\right)^{11}$

(**9 – 11**) Find the sum

9. $\displaystyle\sum_{k=1}^{5} (3k-7)$

10. $\displaystyle\sum_{k=1}^{50} 5$

11. $\displaystyle\sum_{k=15}^{50} 6$