

MA 2733

Worksheet 7 – October 18, 2013

Name _____

1. Calculate the limits of the following sequences:

(a) $\lim_{n \rightarrow \infty} \frac{2n^3 + 3n^2 + 4}{6n^3}$.

(b) $\lim_{n \rightarrow \infty} \frac{\sin n + \cos n}{n}$.

2. Reindex $\sum_{n=1}^{\infty} \frac{2^{n-1}}{n!}$ to be of the form $\sum_{n=0}^{\infty} a_n$.

3. (a) Using sigma notation, write a series summing the even terms of $\sum_{n=1}^{\infty} \frac{1}{n}$. I.e., find

$$\text{a series } \sum_{n=1}^{\infty} a_n = \frac{1}{2} + \frac{1}{4} + \frac{1}{6} + \dots$$

(b) Using sigma notation, write a series summing the odd terms of $\sum_{n=1}^{\infty} \frac{1}{n}$. I.e., find a

$$\text{series } \sum_{n=1}^{\infty} b_n = 1 + \frac{1}{3} + \frac{1}{5} + \dots$$