Math 1AA3/1ZB3: Week 5 Tutorial Problems

February 1, 2019

1. Determine whether the following series converge conditionally, converge absolutely, or diverge:

   (a)
   $$\sum_{n=0}^{\infty} \frac{(-3)^n}{(2n+1)!}$$

   (b)
   $$\sum_{n=1}^{\infty} \frac{2 \cdot (-1)^n}{\sqrt{n}}$$

   (c)
   $$\sum_{n=1}^{\infty} \left(\frac{-2n}{n+1} \right)^{5n}$$

2. Estimate the value of the following series to within an error of 0.01:
   $$\sum_{n=1}^{\infty} \frac{(-1)^n}{n^4}$$

3. Determine the interval of converge for the following power series:
   $$\sum_{n=1}^{\infty} \frac{(-1)^n}{4^n n} (x+1)^n$$

Chapter 11.7 of the textbook contains a good summary of the various tests for evaluating series, and suggestions for choosing an appropriate strategy.