Homework 3

Math 4306 - Partial Differential Equations

Dr. Mewomo

Do all the problems. Type each one up using latex and submit on or before the due date.

1. Find the complex Fourier series of $f(x) = e^{2x}$ in the interval $-\pi < x < \pi$. where $f(x) = f(x + 2\pi)$. Using Parseval's identity, show that
$$\sum_{k=0}^{\infty} \frac{1}{(2-ki)^2} = \frac{\pi \coth 2\pi}{2}.$$
2. David L. Powers Sixth Edition - Section 1.10 Exercise 3
3. David L. Powers Sixth Edition - Section 2.2 Exercise 1
4. David L. Powers Sixth Edition - Section 2.2 Exercise 7
5. David L. Powers Sixth Edition - Section 2.3 Exercise 5
6. David L. Powers Sixth Edition - Section 2.3 Exercise 7