

Applied Mathematics I (500.303)
Homework Assignment 8

Due: Wednesday, November 7, 2001

Reminder: Exam 2 will be available on-line on Monday, November 5, 2001. The exam will be due **IN CLASS** on Thursday, November 15, 2001.

1. Kreyszig problem 2.6.16
2. Kreyszig problem 2.6.18
3. Kreyszig problem 2.10.16
4. Kreyszig problem 19.3.7
5. Kreyszig problem 4.2.8
6. (Refers to problems 4.2.8 and 4.3.2). In problem 4.2.8, one of the functions was a polynomial; the other was a nonterminating series. Show that the nonterminating series is equivalent to

$$1 - \frac{x}{2} \ln \frac{1+x}{1-x}.$$

7. Solve the initial value problem:

$$(x^2 - 4)y'' + 3xy' + y = 0, \quad y(0) = 4, \quad y'(0) = 1.$$

8. Solve the initial value problem:

$$(2x - x^2)y'' - 6(x - 1)y' - 4y = 0, \quad y(1) = 0, \quad y'(1) = 1.$$