Write clearly and legibly, in complete sentences. You may discuss the homework with other students, but the final write-up must be your own. If your solution uses any results not introduced in class, state the result clearly and provide either a reference or a proof.

1. Section 2.5, Problem 51. (10 marks, 5 for each part)
2. Section 2.6, Problem 55 b. (10 marks)
3. Section 2.6, Problem 59. (20 marks, 10 for each part)
4. Section 3.1, Problem 7. (20 marks, 10 for each part)
5. Section 3.2, Problem 12. (10 marks)