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 1.4, Problem 18. (15 marks, 5 for each part)

2. Section 1.4, Problem 22(a). (10 marks)

3. Section 1.4, Problem 23. (15 marks, 5 for each part. Proposition 1.7 was not covered in class but you can use it here without proof if you wish.)

4. Section 1.5, Problem 30. (10 marks)