

**Instructions**

- Answer each question completely; justify your answers.
  - This assignment is due at 4:00 pm on 07 March 2008.
1. Exercise 3.3.14.
  2. Exercise 3.3.20, except parts (a) and (e).
  3. Prove that  $|\mathbb{Z}^2| = \aleph_0$ .
  4. Is the following statement true or false: if  $A$  and  $B$  are sets such that  $A \subsetneq B$  then  $|A| < |B|$ . Explain.
  5. Exercise 4.1.6.
  6. Exercise 4.2.12, parts (d) through (h) inclusive.
  7. Exercise 5.1.1, parts (d) through (f) inclusive.
  8. Exercise 5.1.4, parts (b) and (d).
  9. Exercise 5.1.6, part (c).