Name and Student ID's: _____

Homework 6, Advanced Calculus 1

!!! Please note the new group and classroom assignment !!!

1. Rudin Chapter 3 Exercise 24ab.

2. Rudin Chapter 3 Exercise 24c.

3. Rudin Chapter 3 Exercise 24d.

4. Rudin Chapter 3 Exercise 24e.

5. Rudin Chapter 3 Exercise 21.

6. Rudin Chapter 3 Exercise 22.

7. Rudin Chapter 3 Exercise 23.

8. Given $f : A \to B$ and $\{E_\alpha\}$ a collection of subsets of B, prove that
   (a) $f^{-1}(\cup_\alpha E_\alpha) = \cup_\alpha f^{-1}(E_\alpha)$.
   (b) $f^{-1}(\cap_\alpha E_\alpha) = \cap_\alpha f^{-1}(E_\alpha)$.
   (c) $f^{-1}(E_\alpha^c) = f^{-1}(E_\alpha)^c$.

9. Prove that 8a is still true with f^{-1} replaced by f, but 8b and 8c no longer hold.