Homework 10, Advanced Calculus 1

1. Rudin Chapter 7 Exercise 18

2. Rudin Chapter 7 Exercise 19

3. Rudin Chapter 7 Exercise 20

4. Rudin Chapter 7 Exercise 22

5. Prove that the conditions "$\mathcal{A}$ separates points" and "$\mathcal{A}$ vanishes at no point" are both indispensable for the generalized Stone-Weierstrass Theorem (Thm. 7.31). That is, the theorem is false if either condition is missing.

6. Rudin Chapter 7 Exercise 24, the first two proofs "$|f_p(x)| \leq d(a, p)$ ... and "$\|f_p - f_q\| = d(p, q)$ ..." .

7. Rudin Chapter 7 Exercise 24, the last statement "Y is complete."

8. Rudin Chapter 7 Exercise 14

9. Rudin Chapter 7 Exercise 21

10. Rudin Chapter 7 Exercise 23