Problems:

1. Section 8.1, exercise 6

2. Section 8.1, exercise 8

3. For the relation $R = \{(b, c), (b, e), (c, e), (d, a), (e, b), (e, c)\}$ on $\{a, b, c, d, e, f\}$, compute the following.

   (a) The reflexive closure of R.

   (b) The symmetric closure of R.

   (c) The transitive closure of R.

   (d) The reflexive-transitive closure of R.

4. A relation R is called *circular* if aRb and bRc imply that cRa for every a, b, and c. Prove that R is reflexive and circular if and only if it is an equivalence relation.

5. Section 8.5, exercise 64

6. Section 9.2, exercise 18

7. Section 9.3, exercise 52

8. Section 9.4, exercise 20

   Please write about how many hours it took you to complete this assignment near where you write your name on the first page.