Problems:

1. 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 \( R \).

2. A relation \( R \) is called circular if \( aRb \) and \( b Rc \) 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.

3. Section 8.5, exercise 64 [5th edition: Section 7.5, exercise 50]