Quiz Sec 8.1, 8.5, 9.1, 9.2

For the following relations n problems 1 and 2, determine if each is any of: reflexive, symmetric, transitive, or antisymmetric.

If a property holds, simply state that. If a property does *not* hold, give a counter example.

All relations R are on the set {0, 1, 2, 3}

1. R = {(0, 0), (1, 1), (1, 3), (3, 1), (3, 3)}

   Reflexive?: _____

   Symmetric?: _____

   Anti-Symmetric?: _____

   Transitive?: _____

2. R = {(0, 0), (1, 1), (1, 3), (2, 2), (3, 3)}

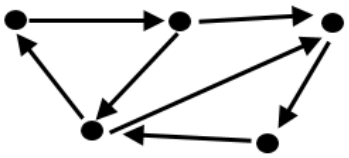
   Reflexive?: _____

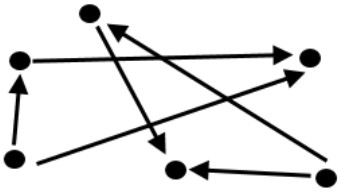
   Symmetric?: _____

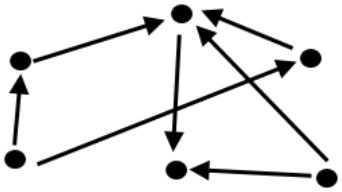
   Anti-Symmetric?: _____

   Transitive?: _____

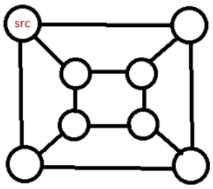
3. For the following directed graphs, determine if each is Strongly Connected, Weakly Connected, or Neither. In each case, give your reasoning.

a) _____ 

b) _____ 

c) _____ 

4. Draw K7.
5. How many edges does the complete graph with 10 vertices have?
6. Is the graph below bipartite?



7. What is the sum of degrees in any graph?