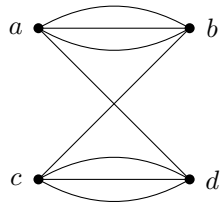
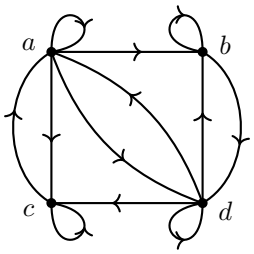
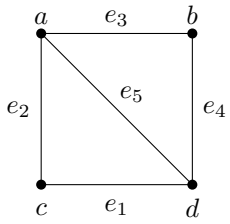
Problem §10.3 - 14: Represent the following graph using an adjacency matrix.

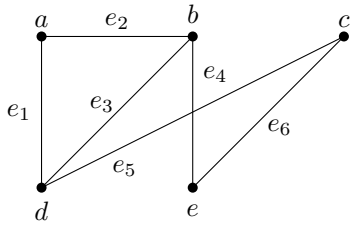


Problem §10.3 - 20: Find the adjacency matrix of the given directed multigraph with respect to the vertices listed in alphabetic order.

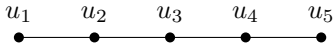


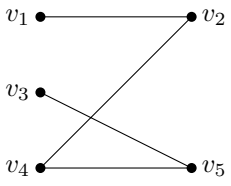
Problem §10.3 - 26: Use incidence matrices to represent the following graphs:



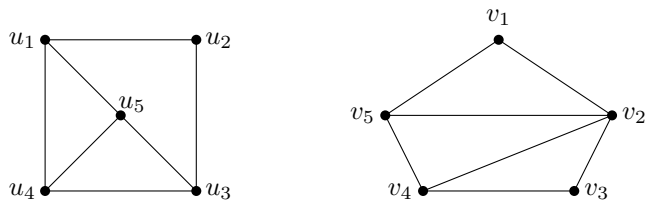


Problem §10.3 - 34: Determine if the given pair of graphs is isomorphic. Either exhibit an isomorphism or provide a rigorous argument that none exists.

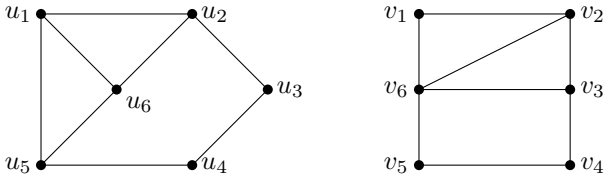




Problem §10.3 - 36: Determine if the given pair of graphs is isomorphic. Either exhibit an isomorphism or provide a rigorous argument that none exists.

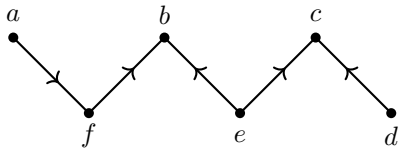


Problem §10.3 - 40: Determine if the given pair of graphs is isomorphic. Either exhibit an isomorphism or provide a rigorous argument that none exists.

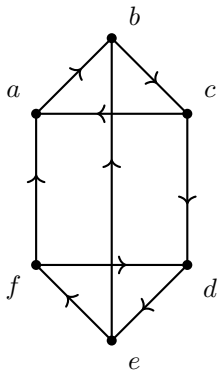


Problem §10.4 - 12: Determine whether each of these graphs is strongly connected and if not, whether it is weakly connected.

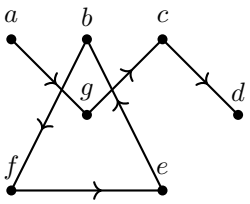
(a)



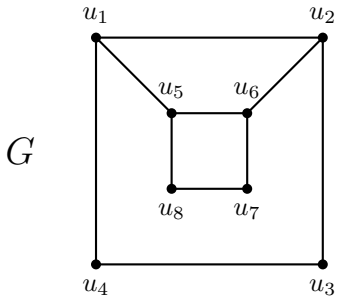
(b)

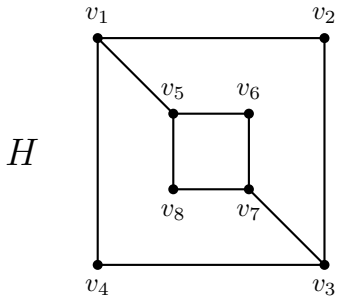


(c)

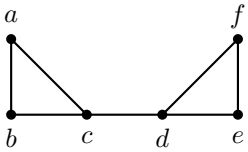


Problem §10.4 - 20: Use paths either to show that these graphs are not isomorphic or to find an isomorphism between these graphs.

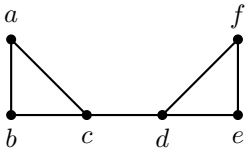




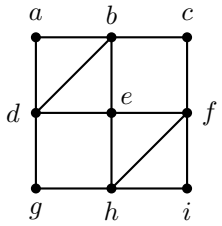
Problem §10.4 - 32: Find all the cut vertices of the given graph.



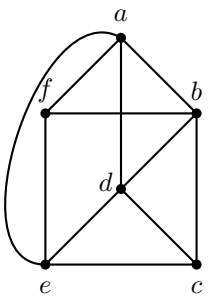
Problem §10.4 - 34: Find all the cut edges of the given graph.



Problem §10.5 - 2: Determine whether the given graph has an Euler circuit. Construct such a circuit when one exists. If no Euler circuit exists, determine whether the graph has an Euler path and construct such a path if one exists.



Problem §10.5 - 4: Determine whether the given graph has an Euler circuit. Construct such a circuit when one exists. If no Euler circuit exists, determine whether the graph has an Euler path and construct such a path if one exists.



Problem §10.5 - 26: For which values of n do these graphs have an Euler circuit?

(a) K_n

(b) C_n

(c) W_n

(d) Q_n

Problem §10.5 - 30: Determine whether the given graph has a Hamilton circuit. If it does, find such a circuit. If it does not, give an argument to show why no such circuit exists