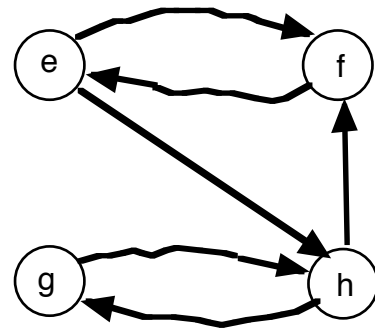
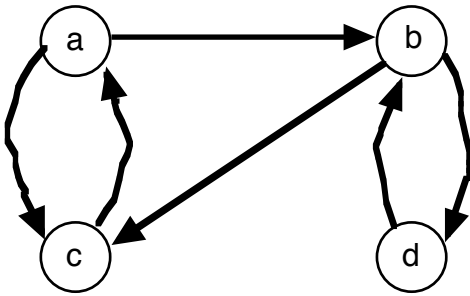


Exam II Study Problems

Give a simplest possible example of a (non-empty) simple undirected graph with:

- (a) no vertices of odd degree,
- (b) exactly one vertex of odd degree,
- (c) no vertices of even degree,
- (d) exactly one vertex of even degree,
- (e) exactly two vertices of odd degree,
- (f) exactly two vertices of even degree.

Determine whether or not the two digraphs below are isomorphic, and justify your answer.



How can the path matrix be used to determine the connected components of a graph?

Let $G = (V, E)$ be a connected simple (undirected) graph with no self-loops. Show that if G has a simple cycle of length n , then G has at least n different spanning trees.