Note that the text uses \( v.d \) for what my notes refer to as \( \text{start}[v] \)—that is, it is the timestamp specifying the “time” at which the vertex \( v \) is first reached (and put on the stack) in the depth-first walk. Similarly \( v.f \) in the text is what I have denoted in the notes as \( \text{finish}[v] \).

1. Exercise 22.4-1 (page 614).
2. Exercise 22.4-2 (page 614).
3. Exercise 22.5-2 (page 620).
4. Exercise 22.5-4 (page 620). (This looks complicated and confusing. It isn’t.)
5. Give an example to show that the pre-order numbering of a DAG may not topologically sort the DAG.
6. Prove that if we start with a connected undirected graph, then the depth-first walk algorithm always yields a spanning tree (i.e., not a forest of trees).
7. In an undirected graph \( G \) a set of vertices \( C \) is called a clique iff every two vertices of \( C \) are connected by an edge. Prove that in the spanning (directed) tree resulting from a depth-first walk of \( G \), all the vertices of \( C \) appear on one directed path. That is, there is a path of tree edges such that every element of the clique is on the path.