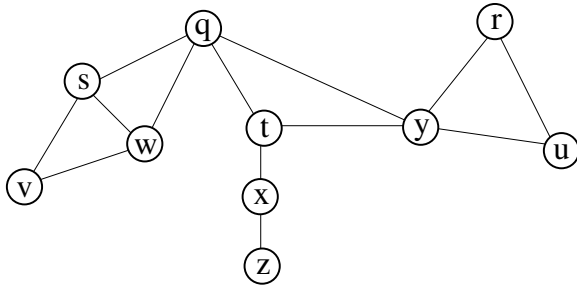
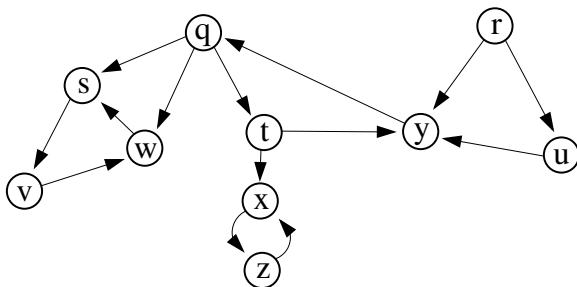


1. Show the order in which a depth-first search would visit each vertex and edge in the following graph by drawing the search trees (with all edges of G shown — tree edges solid, other edges dotted), and the vertices numbered in order visited. Start with node q , and use alphabetical ordering to choose which node to process next when there is more than one from which to choose.



2. Repeat the previous exercise for breadth-first search.

3. Give the depth-first search tree, as described above, for the following graph:



4. Repeat the previous exercise for breadth-first search.

5. A vertex u of a directed graph can end up in a depth-first search tree containing only u , even though u has both incoming and outgoing edges in G . Draw such a graph and explain how this can happen.