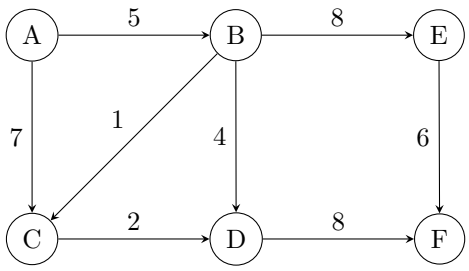

Problem 1. Perform a breadth-first search of the graph starting from vertex A. Give the number of steps to reach *every* other vertex. Additionally, give the order in which the vertices are *first* witnessed; that is, give the order in which they first enter the queue (and not necessarily the order in which they are explored).

Paths - Number of Steps
A: A - 0
B: A,B - 1
C: A,C - 1
D: A,B,D - 2
E: A,B,E - 2
F: A,B,E,F - 3

Problem 2. Use Dijkstra's algorithm on this graph starting from vertex A. Give the cost of the least-cost path to *every* other vertex. Additionally, give the order in which the vertices are *first* witnessed; that is, give the order in which they first enter the equeue (and not necessarily the order in which they are explored).

Paths - Cost
A: A - 0
B: A,B - 5
C: A,B,C - 6
D: A,B,C,D - 8
E: A,B,E - 13
F: A,B,C,D,F - 16

Order in which the vertices are first witnessed: A,B,C,E,D,F

Problem 3. Give two valid topological sorts of this graph.
A-B-C-E-D-F
A-B-E-C-D-F