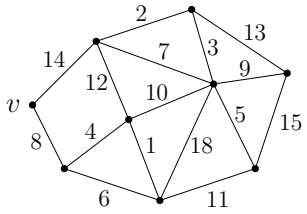
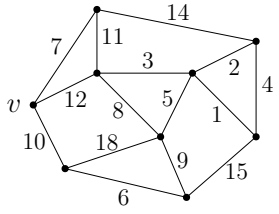
MACM 201 Additional Assignment 3 (no quiz)

Instructor question(s):

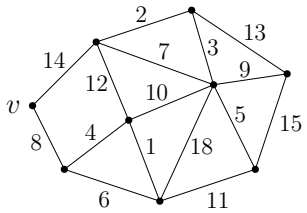
1. This problem concerns algorithms on two weighted graphs. For both graphs the edges have distinct weights so you may treat the weight of an edge as its name.

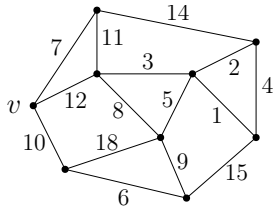
   (a) Run (the augmented) Dijkstra algorithm on each weighted graph to compute the distance of each vertex from v and find a spanning tree giving the shortest paths from v. In what order are the edges added to this shortest path tree?



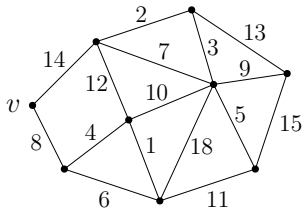


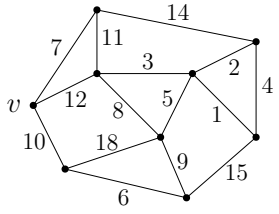
   (b) Run Kruskal's algorithm on each weighted graph to compute a min-cost spanning tree. In what order are the edges selected?





   (c) Run Prim's algorithm on each weighted graph to compute a min-cost spanning tree rooted at v. In what order are the edges selected?





2. Determine the chromatic polynomial for each graph.