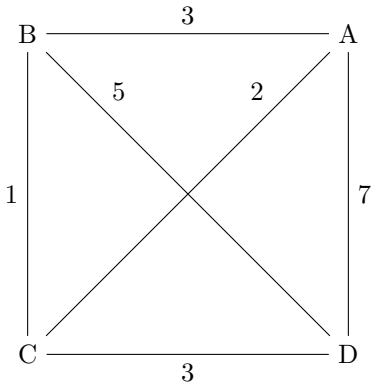
MA 1015: Homework #11

Question 1. For this graph:



a) Please find the minimal weight Hamilton circuit starting at A using the brute force algorithm.

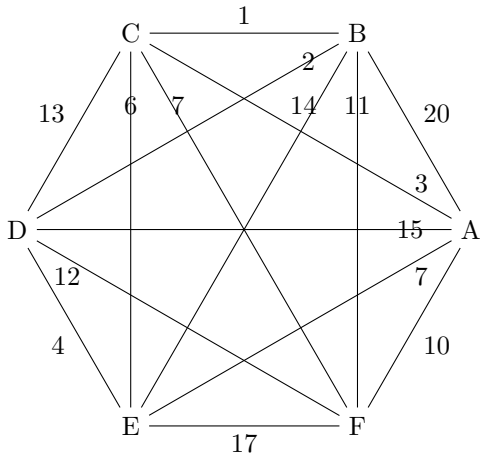
b) Please find a good Hamilton circuit starting at A using the Nearest Neighbor algorithm.

c) Please find a good Hamilton circuit starting at A using the Sorted Edges algorithm.

Question 2. Imagine you have a graph of 10 vertices. Rank these methods from easiest to hardest: finding a good Hamilton circuit starting at A using the nearest neighbor algorithm; finding a good Hamilton circuit starting at A using the sorted edges algorithm; finding a good Hamilton circuit starting at A using brute force. Say a few words to justify your answer.

Question 3. Please invent an example weighted graph where the sorted edges procedure does not choose the best possible Hamilton circuit.

Question 4. Consider this weighted graph:



a) Please find the Hamilton circuit produced by the sorted edges procedure.

b) Please use the repeated nearest neighbor algorithm to find a low-cost Hamilton circuit.

c) Which of these procedures yielded better results?