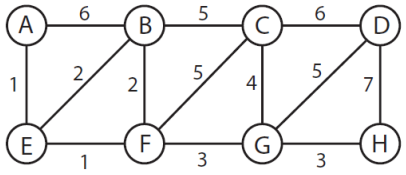
CPSC 3210 Intro. to Design &Analysis of Algorithms

Exam 3

The exam is **take home**. Please provide your answer to each question using word or Latex (or other digital text processing methods). You need to upload your answer to Canvas by end of the day on May 3rd (Monday)

1. Consider the following graph



   (a) What is the cost of its minimum spanning tree?
   (b) How many minimum spanning trees does the graph have?
   (c) Suppose Kruskal's algorithm is run on this graph, list the order in which edges will be added to the MST.

2. For given input integer sequences {4, 12, 3, 89, 34, 78, 31, 10, 18, 46}, use a binary heap to implement a standard priority queue ADT. Perform twice DeleteMin() and then an Insert(15) operations using the priority queue. Show the configuration of your data structure at each step (your heap starts from an empty one, so you need to construct the heap first).