Minimum Spanning Trees

- Read section 4.3, pages 94-99
  - What do we refer to as a **spanning tree** of a graph G?
    - What are the order and size of such a spanning tree?
  - The book describes two ways to produce a spanning tree, one by adding edges to an initially empty graph and another by removing edges from a more complete graph. Describe in more details those two ways.
  - Prove theorem 4.10: Every connected graph contains a spanning tree.
  - What do we refer to as a **weighted graph**?
  - How do we compute the *weight* of a subgraph of a weighted graph?
  - What is the **Minimum Spanning Tree Problem**?
  - Describe **Kruskal's Algorithm** for locating a minimum spanning tree of a weighted graph.
  - Prove that Kruskal's algorithm does indeed produce a minimum spanning tree. This consists of two parts:
    - Proving that the result of the construction is indeed a spanning tree.
    - Proving that it is a minimum spanning tree.
  - Describe **Prim's Algorithm** for locating a minimum spanning tree of a weighted graph.
  - How do Kruskal's and Prim's algorithms differ?
  - Prove that Prim's Algorithm does indeed produce a minimum spanning tree.
  - Work out problem 4.26
  - Practice Problems: 4.25, 4.27