Approximation Algorithms **Homework 1**
Date: January 18, 2010 **Due:** January 28, 2010

1. (10 points) Problem 2.1, page 57.
2. (5 points) Problem 2.2, page 57.
3. (10 points) Problem 2.9, page 58.
4. (10 points) Problem 2.12, page 59.
5. (15 points) Problem 2.13, page 59-60.
6. (5 points) Show that the local search algorithm for the minimum degree spanning tree problem (without the modification to improve the running time) returns a tree of maximum degree at most $b \cdot OPT + \lceil \log_b n \rceil$ for any $b > 1$. Here OPT is the maximum degree of the optimal solution and n is the number of vertices in the graph.