Homework 5

Due date: Friday, December 7

1. Boyd and Vandenberghe, Chapter 11, Problem 11.5.

2. *Bonus problem (you get lots of extra credit if you do this):* Implement a barrier method for solving the SDP (without equality constraints for simplicity)

$$\begin{array}{ll} \text{minimize} & c^T x \\ \text{subject to} & F_0 + x_1 F_1 + x_2 F_2 + \ldots + x_n F_n \leq 0, \end{array}$$

   where the $F_i's$ are $p \times p$ symmetric matrices. You can assume a strictly feasible point is given. Test your code on several (small scale) examples. Plot the duality gap versus Newton steps.