

**Solid State Physics, Physics 551**  
**Homework Assignment 3, due March 8, 2010**

**Problem 1.** A&M, Problem 1.1.

**Problem 2.** A&M, Problem 1.2.

**Problem 3.** Kittel, Problem 6.3.

**Problem 4.** Kittel, Problem 6.6.

**Problem 5.** Kittel, Problem 7.6.

**Problem 6.** Using the steady-state Boltzmann transport equation in the relaxation time approximation (Kittel, Eq. 10 in Appendix F), calculate electric and heat conductivities of electrons at high temperatures, when the equilibrium distribution function has the form  $f_0(\varepsilon) = \exp((\mu - \varepsilon)/T)$ .