

Physics 261
Homework # 1

1. Faissler, problem 2-4.
2. Faissler, problem 2-6.
3. Faissler, problem 2-7.
4. Consider a wire 1 m long, with a diameter of 1 mm.
 - (a) A typical size for an atom is 1 \AA (10^{-10} m). If each atom contributes one conduction electron, how many conduction electrons, N , are in the wire?
 - (b) What is n , the density of conduction electrons (units: m^{-3})?
 - (c) For a current of 1 A, what is the drift velocity of conduction electrons in the wire (see Faissler, p. 13)?
 - (d) What would be the resistance of a wire of the same dimensions, made of copper (see Faissler, p. 18)?