ECEn 464 (Block 2)
Wireless Communication Circuits

Homework #1: Due Wednesday October 30, 2013 in class

1. 2.1
2. 2.11
3. 4.11
4. Derive the S-parameters relative to a system impedance of Z_0 for (a) a transmission line of length l with impedance Z_0 and (b) a transmission line of length l and impedance $2Z_0$. Hint: write down three expressions for the voltage on the transmission line at the input port, the transmission line internal to the network, and the transmission line at the output port, and use boundary conditions to eliminate unknowns.
5. 4.14 (Return loss is S_{11} in dB and insertion loss is S_{42} in dB, and by convention these values are given as positive in dB if the S-parameter has magnitude less than one.)