Homework 7.1

- 1. Consider two concentric metal cylindrical shells of 1 meter length and of radius a and b, respectively. They are separated by a weakly conducting material of conductivity σ .
 - a. If they are maintained at a potential difference V, what current flows from one to the other.
 - b. What is the resistance between the shells?
- 2. Work problem 7.2 in the text, i.e. the RC circuit in the text on page 302.
- 3. A capacitor C is charged up to a potential V and connected to an inductor L as shown below. At time t = 0, the switch S is closed. Find the current in the circuit as a function of time. How does your answer change if a resistor R is included in series with L and C?



4. Work problem 7.3 in the text on page 302.