EE 322 Advanced Electronics, Spring 2012
Homework #3 assignment

1. Plot, to scale, the voltage across, and current through the inductor of a step-down switching voltage regulator with $V_{in} = 10$ V and $V_{out} = 3$ V

2. If the cycle-averaged input current is 1 mA, what is the cycle-averaged output current?

3. If the cycle frequency is 10 kHz what are $T_C$ and $T_O$ in continuous mode?

4. What size inductor current will cause the current to vary by 100 mA during a cycle?

5. To obtain continuous mode operation to a load current of 10 mA, what size inductor is required? Is this a minimum or maximum inductor size for that operation?

6. For that same inductor what is $T_C$ which results in a 1 mA current?

7. Plot, to scale, inductor voltage and inductor current which results in one third the output current of the minimum continuous mode output current.