

**ECE 202 HW #3**  
**Spring 2007**  
**Due 02/09/07**

- Office Hours: MW 3:30-5:00 p.m.
- Read Chapters 8.4-8.6 from the book and the lecture notes.

1. [20] 8.35

2. [30] 8.43

- a) Write the node-voltage equations for this circuit by inspection.
- b) Solve for  $V_A$  and  $V_B$  by hand using Cramer's rule.
- c) Write a MATLAB code for finding  $V_A, V_B$ . Include your code and your results.

3. [30] 8.45

- a) Write the mesh-current equations for this circuit by inspection.
- b) Solve for  $I_A$  and  $I_B$  by hand using Cramer's rule.
- c) Write a MATLAB code for finding  $I_A, I_B$ . Include your code and your results.

4. [20] A load consists of a  $60\ \Omega$  resistor in parallel with a  $90\ \mu\text{F}$  capacitor. If the load is connected to a voltage source  $v_s(t) = 40 \cos(2000t)$ , find the average power delivered to the load.