Massachusetts Institute of Technology  
Department of Electrical Engineering and Computer Science

6.002 - Circuits & Electronics  
Spring 2011

Quiz #1  
March 8th, 2011

Name:  

Recitation Instructor  
Afridi  
Afridi  
Kong  
Kong

Recitation Time:  
10  
11  
12  
1

- There are 11 pages in this quiz, including this page. Please check that you have them all.
- Please write your name in the space provided above and circle the name of your recitation instructor along with the time of your recitation.
- IMPORTANT: The problems in this quiz vary in difficulty; moreover, questions of different levels of difficulty are distributed throughout the quiz. If you find yourself spending a long time on a question, consider moving on to later problems in the quiz and then working on the challenging problems after you have finished all of the easier ones.
- Do your work for each question within the boundaries of that question or on the back of the preceding page.
- Remember to include the sign and units for all numerical answers.
- This is a closed-book quiz, but you may use a calculator and a double-sided page of notes.
- You have 2 hours to complete this quiz. Good luck!
- Graded quizzes will be returned in recitation. If you wish to have your quiz grade reviewed, you must meet with your recitation instructor within two weeks of the quiz date.

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Problem 1 (10 Points)

Following the node method, develop a set of simultaneous equations for the network shown above that can be used to solve for the three unknown node voltages. Please write your final equations in the box provided. Also, note that you do not have to solve for the node voltages.
Problem 2 (15 Points)

(a) Derive and draw the Thévenin equivalent model of the above circuit as seen from Port A.
(b) If Port A is short circuited, what is the total power dissipated in the three resistors? (Remember that power is nonlinear).