

*University of Portland*  
*School of Engineering*

**EE 261-Electrical Circuits-3 cr. hrs.**  
**Fall 2005**

**Midterm Exam # 1**

(Friday, September 30, 2005)  
(Closed Book Exam, One Formula Sheet Allowed)  
(Total Time: 55 minutes)

**Name:** \_\_\_\_\_ 😊

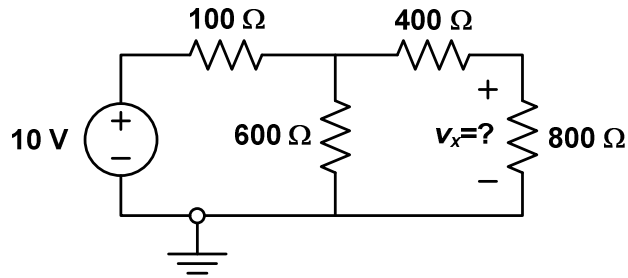
**Signature:** \_\_\_\_\_ 😊

*“An honest mind possesses a kingdom.”*  
Lucius Annaeus Seneca (4B.C.–65A.D.)

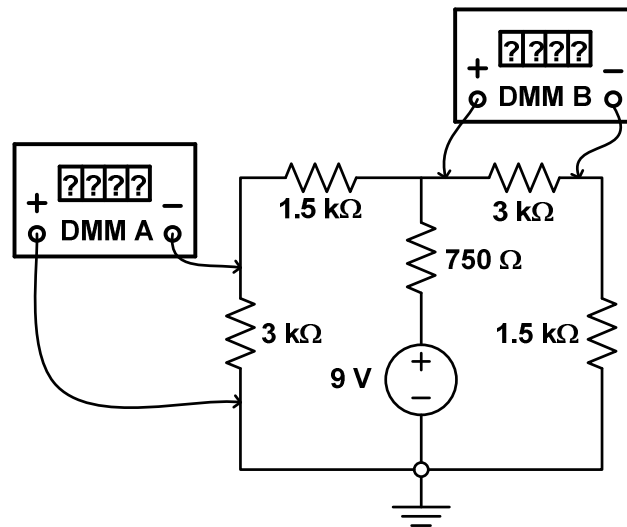
*“Honest people are the true winners of the universe.”*  
Anonymous

**NOTE:** On all the problems, please show your work clearly, and provide the appropriate units for your answers. Also mark on the schematic to show any current or voltage that you define in your solution.

1. (25 points) In the circuit shown, find the value of the voltage  $v_x$  across the  $800\ \Omega$  resistor. (Please show your work clearly and provide brief justifications for the steps you take. Also, don't forget to provide the correct units for your answers.)

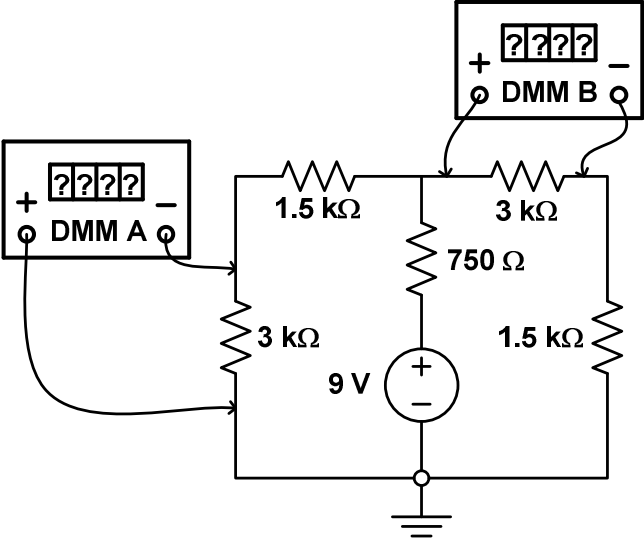


2. (Total: 25 Points) Consider the circuit with two digital multi-meters (DMM's) A and B connected as shown.

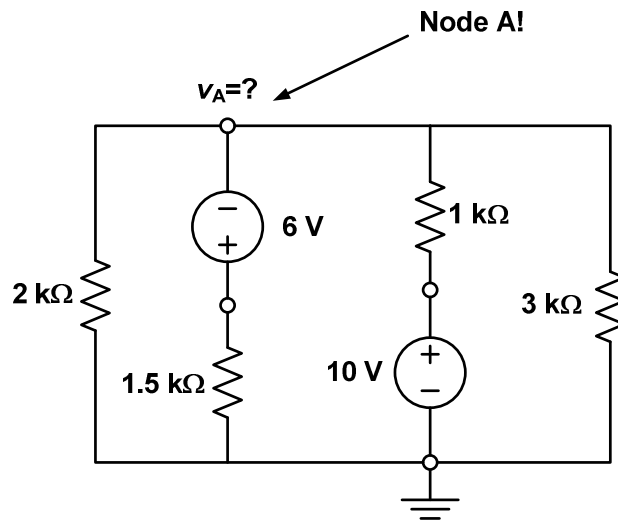


- (a) (12.5 points) Find the DMM readings if both of them are set to measure voltage, and indicate the units. (Note: Pay attention to the polarities of each DMM!)

(b) (12.5 points) Repeat part (a) if DMM A by mistake is set to measure current. Again, indicate your units.



3. (25 Points) Consider the circuit shown. Determine the node voltage  $v_A$  at node A. Please show your work step by step.



4. (25 Points) In the circuit shown, find the current  $i_x$  that flows through the  $3\text{ k}\Omega$  resistor. Please show your work step by step.

