

University of Portland
School of Engineering

EE 261-Electrical Circuits-3 cr. hrs.
Fall 2011

Midterm Exam # 2

(Friday, November 4, 2011)

(Closed Book Exam, Two Formula Sheets Allowed)

(Total Time: 55 minutes)

Name: _____ 😊

Signature: _____ 😊

“An honest mind possesses a kingdom.”

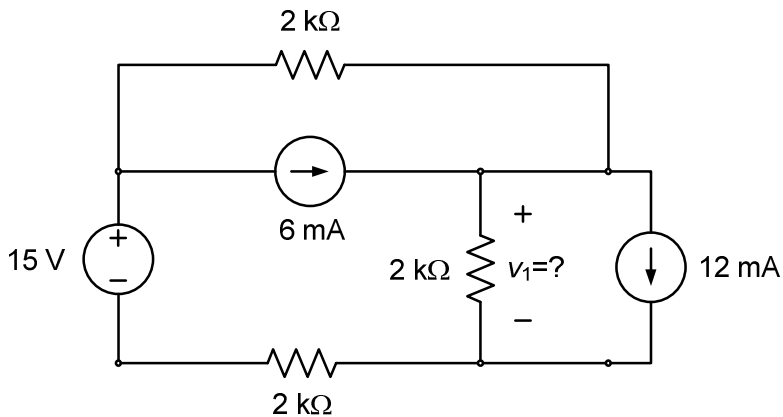
Lucius Annaeus Seneca (4B.C.–65A.D.)

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

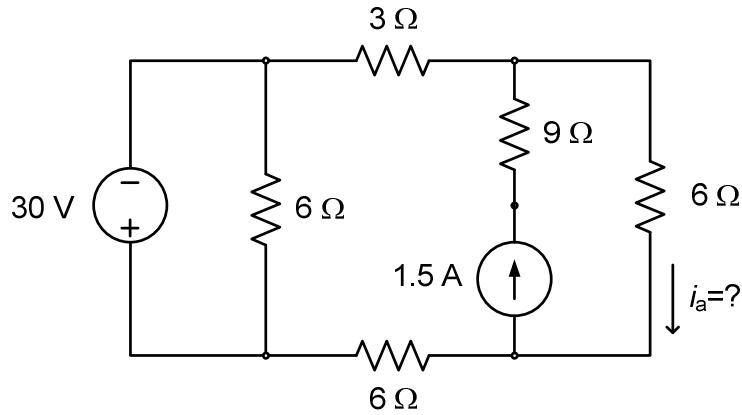
Anonymous

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.

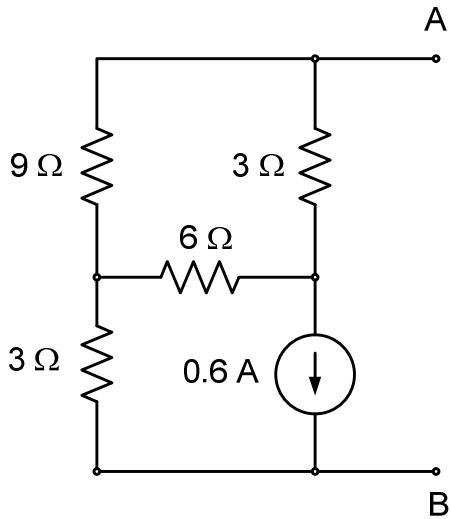
1. (25 points) In the electric circuit shown, find the value of the voltage v_1 across the $2\text{ k}\Omega$ resistor shown. (Please show your work clearly and provide brief justifications for the steps you take. Also, don't forget to provide the correct units for your answers.)



2. (25 Points) In the electric circuit shown, determine the value of the current i_a flowing through the $6\ \Omega$ resistor on the right. (Again, please show your work clearly and provide brief justifications for the steps you take. Provide units.)



3. (25 Points) Consider the electric circuit shown. Determine the external load resistor R_L to be connected between A-B terminals so that it receives maximum power from this circuit. What is the maximum power delivered to the load resistor chosen? Please provide your work step by step with justifications. Don't forget to calculate the power value!



4. (25 Points) In the electric circuit shown, all capacitors have the same value, each given by C . Determine the value of C . Please show your work step by step. Note that the current $i_S(t)$ is given in mA. Provide the correct unit for your value!

