University ☺f P☺rtland
Sch☺☺l ☺f Engineering

EE 261-Electrical Circuits-3 cr. hrs.
Summer 2015

Midterm Exam

(Wednesday, June 3, 2015)
(Closed Book Exam, One Formula Sheet Allowed)
(Total Time: 1 hour)

Name:_____☺

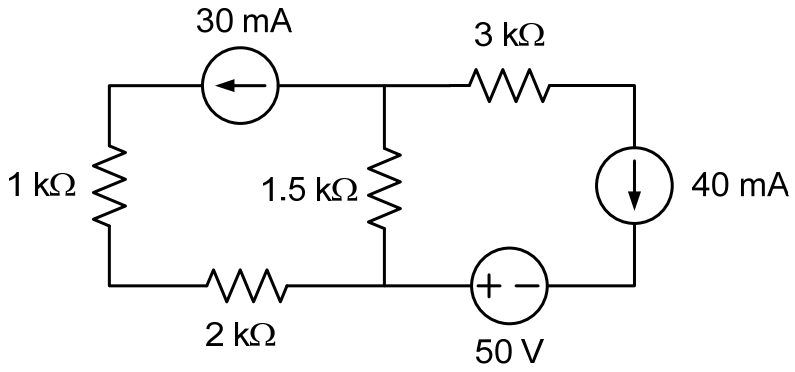
Signature:_____☺

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

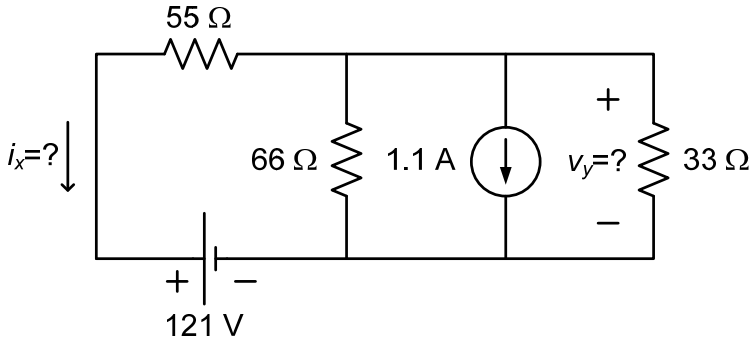
"Honest people are the true winners of the universe."
Anonymous

NOTE: Do only 4 problems of your choice in class. Do the other 2 problems take-home and bring them to class tomorrow.

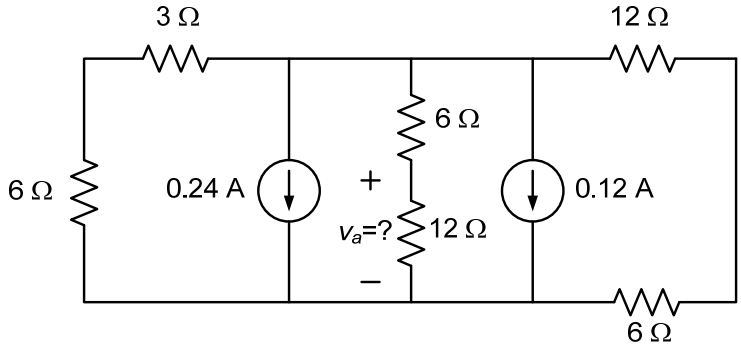
1. (20 points) In the electric circuit shown, find the power of each source. Provide your answers based on passive convention. Show your work and provide brief justifications for the steps you take. Also, don't forget to provide the correct units for your answers. Please box each answer.



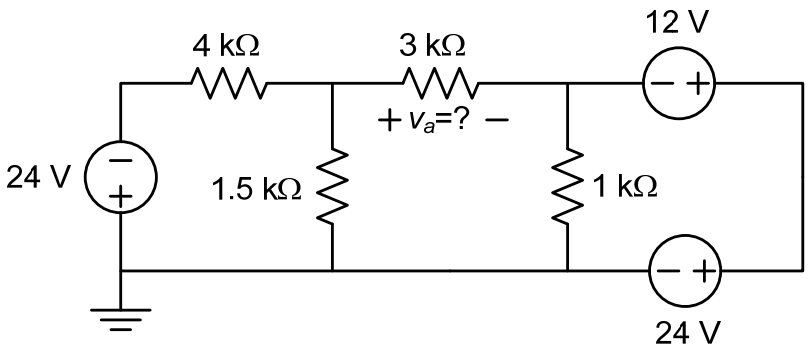
2. (20 Points) Consider the electric circuit shown. Find the current i_x and the voltage v_y. Show your work step by step including justifications. Box your answers with appropriate units.



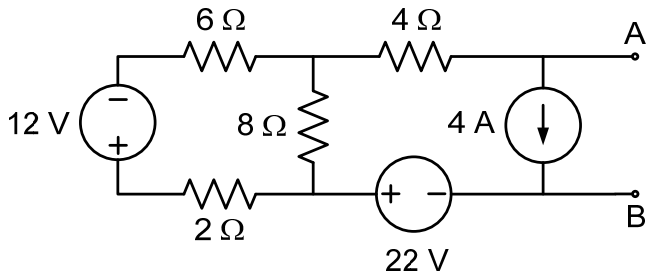
3. (20 Points) Consider the electric circuit shown. Determine the voltage v_a across the 12 Ω resistor as indicated. Please provide your work step by step with justifications. Box your answer.



4. (20 Points) In the electric circuit shown, apply node voltage method to solve for the voltage v_a. Show your work step by step.



5. (20 points) For the electric circuit shown, find (a) the Thevenin equivalent circuit; and (b) the Norton equivalent circuit seen between terminals A and B. Sketch each equivalent circuit with the appropriate values provided. Please show your work step by step.



6. (20 Points) In the electric circuit shown, determine the value of the voltage v_x across the 3 kΩ resistor. (Again, please show your work clearly and provide brief justifications for the steps you take. Provide units.)