

University of Portland
School of Engineering

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

Midterm Exam # 1

(Friday, October 9, 2015)

(Closed Book Exam, One Formula Sheet Allowed)

(Total Time: 55 minutes)

Name: _____ 😊

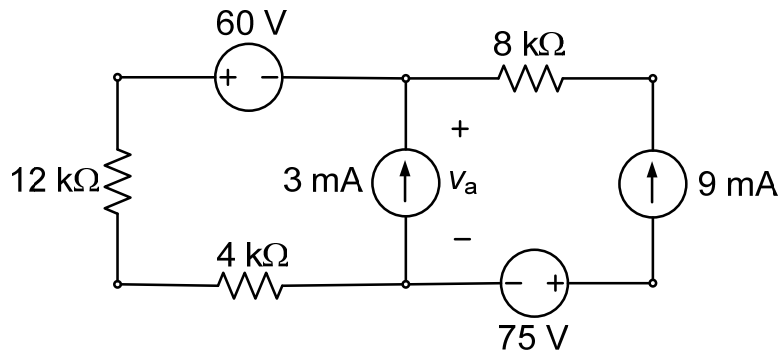
Signature: _____ 😊

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

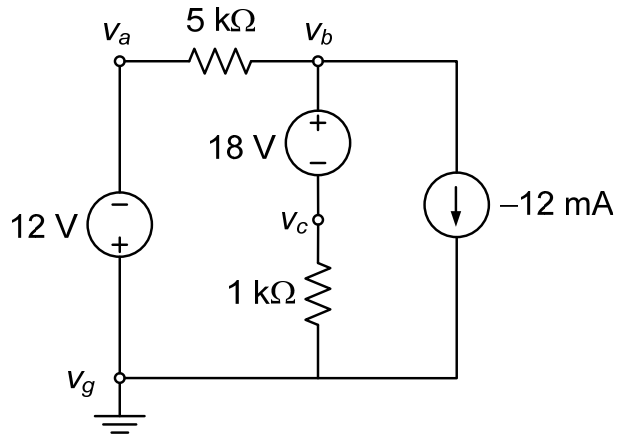
“Honest people are the true winners of the universe.”
Anonymous

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.

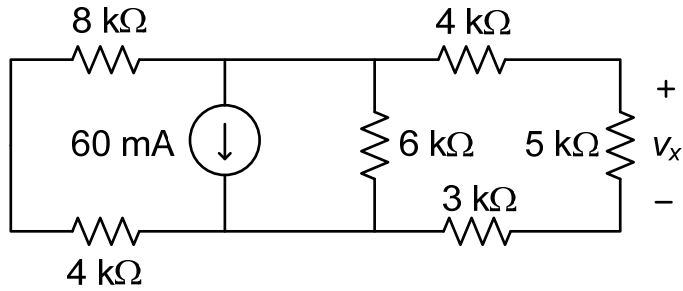
1. (20 points) In the electric circuit shown, determine the value of the voltage V_a across the 3 mA current source based on the polarity indicated. Show your work and provide brief justifications for the steps you take. Please box your answer and provide appropriate units.



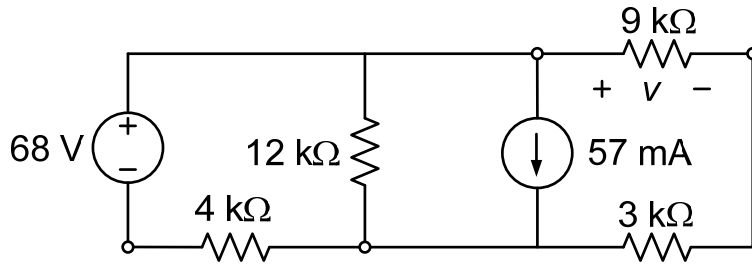
2. (20 Points) Consider the electric circuit shown. Determine the values of node voltages V_a , V_b , V_c , and V_g . Show your work step by step including justifications. Box your answers with appropriate units.



3. (20 Points) Consider the electric circuit shown. Determine the voltage V_x across the $5\text{ k}\Omega$ resistor on the right-hand-side as indicated. Please provide your work step by step with justifications. Box your answer.



4. (20 Points) For the electric circuit shown, find the value of the voltage V across the $9\text{ k}\Omega$ resistor. Show your work step by step and provide justifications. Box your answer with appropriate units.



5. (20 Points) Two of the currents in the electric circuit shown are measured, as indicated. Using these measurements, determine the source voltages V_{S1} and V_{S2} . Show your work step by step and box your answers.

