

ECE 209 — Exam # 2

Estimated time for completion: <50 minutes
27 February 2015

Rules of the Exam

Rule 1: The examination period begins at 1:10pm on Friday 27 February 2015 and ends at 2:00pm on Friday 27 February 2015.

Rule 2: There are four problems plus one bonus problem.

Rule 3: Show all work and state all assumptions. Make sure to include the units along with a numerical answer.

Rule 4: The exam is closed book and closed notes. You may have an 8.5" x 11" sheet of paper with notes. You may use a calculator.

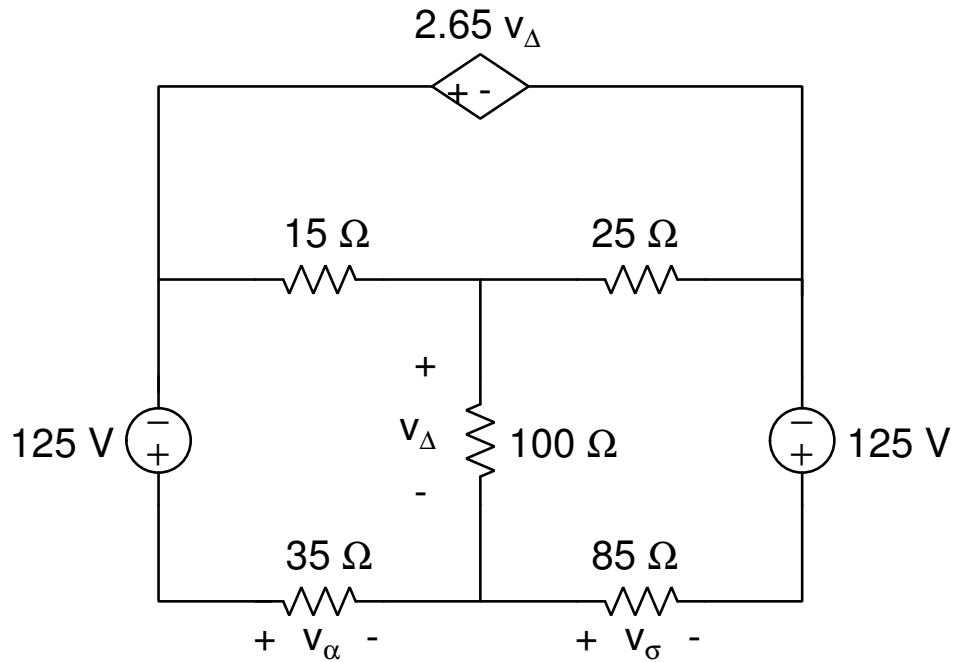
Rule 5: Please put your name on each page of the exam.

Name

Name: _____

Problem 1 (30 points)

Consider the circuit below:



What is the voltage v_Δ ? _____

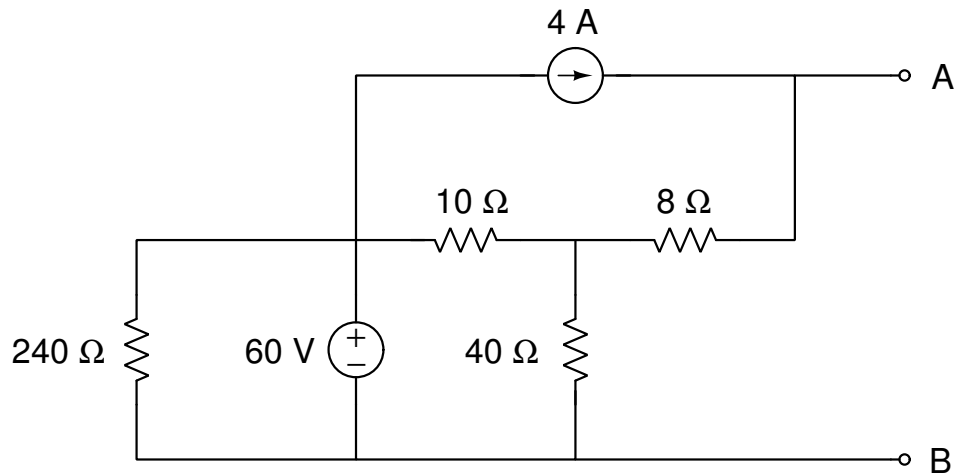
What is the voltage v_σ ? _____

What is the voltage v_α ? _____

Name: _____

Problem 2 (20 points)

Consider the circuit below:



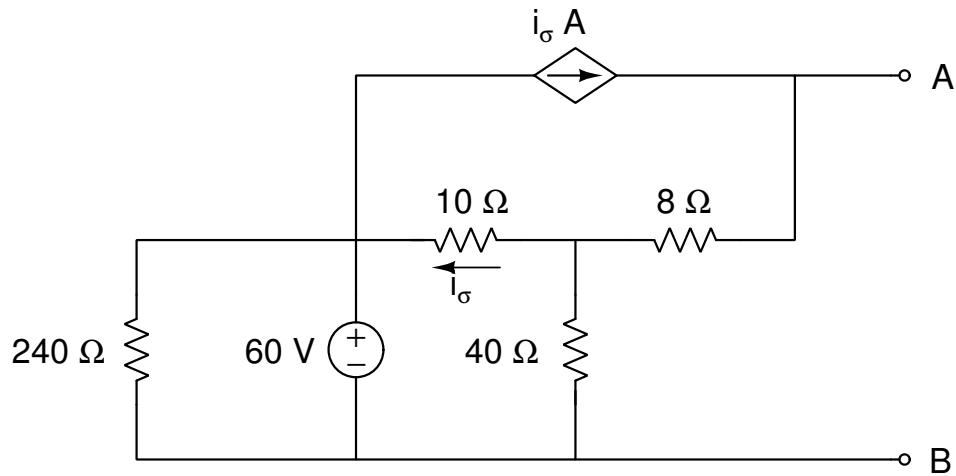
Part A: Draw the Thévenin Equivalent Circuit with respect to terminals A and B.

Part B: Draw the Norton Equivalent Circuit with respect to terminals A and B.

Name: _____

Problem 3 (20 points)

Consider the circuit below:

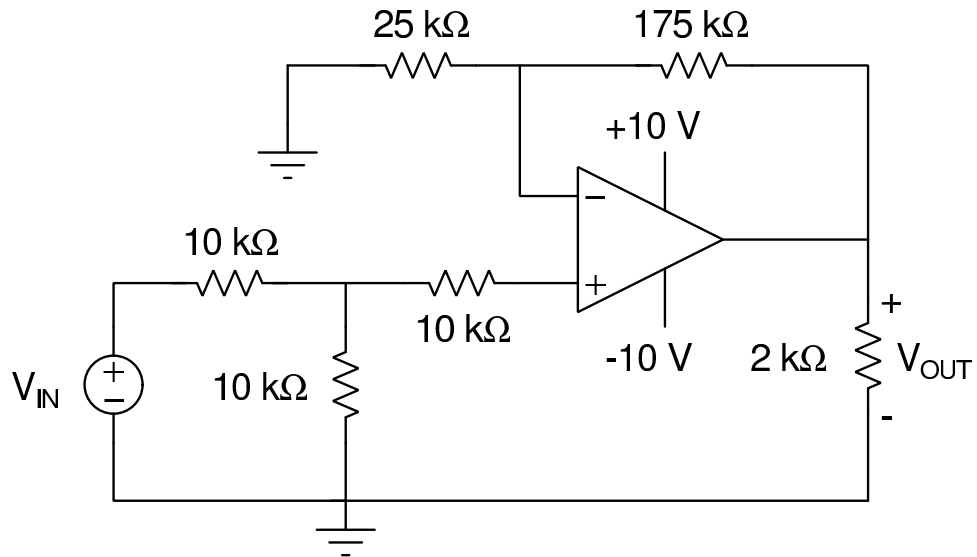


Draw the Thévenin Equivalent Circuit with respect to terminals A and B.

Name: _____

Problem 4 (30 points)

Consider the ideal Op Amp circuit below:



Part A: Derive an expression relating V_{OUT} as a function of V_{IN} : _____

Part B: Complete the table below:

V_{IN}	V_{OUT}
-4 V	
-2 V	
0 V	
2 V	
4 V	