

NAME _____

EET 150 Lab 5

More Series-Parallel Circuits

OBJECTIVES:

- A. To build and analyze circuits from schematic diagrams containing the common (ground) symbol.
- B. To find out whether Kirchhoff's laws, the voltage-divider rule, and the current-divider rule apply to these circuits.
- C. To build and analyze circuits from schematic diagrams with unusual geometries.

PROCEDURE:

1. Select the resistors shown in Table A. Measure and record their actual resistances.
Throughout this lab, round all predicted values, measured values, and percentage errors to three significant digits.

TABLE A: Resistor Values

Resistor I.D.	Nominal Value	Actual Value
R ₁	820 Ω	
R ₂	620 Ω	
R ₃	560 Ω	
R ₄	1 k Ω	

2. The following page contains diagrams of two series-parallel circuits. Use your knowledge of series-parallel circuits to predict the quantities listed in the tables below the circuit diagrams. Then build each circuit and measure these quantities. Record your measured values, along with percentage errors.
3. After completing all measurements, answer the questions listed below.

QUESTIONS: (Type your answers on another sheet.)

1. Based on your data for Circuit 1, is the **voltage-divider rule** satisfied in this circuit? Explain, giving **one specific example** of how this rule either is or is not satisfied in that circuit, using actual *measured* values, not predicted values. As part of your answer, show your calculation, and discuss the percentage error between your calculated and measured values.
2. Repeat Question 1 for the **current-divider rule**.
3. Repeat Question 1 for **Kirchhoff's Voltage Law**.
4. Repeat Question 1 for **Kirchhoff's Current Law**.

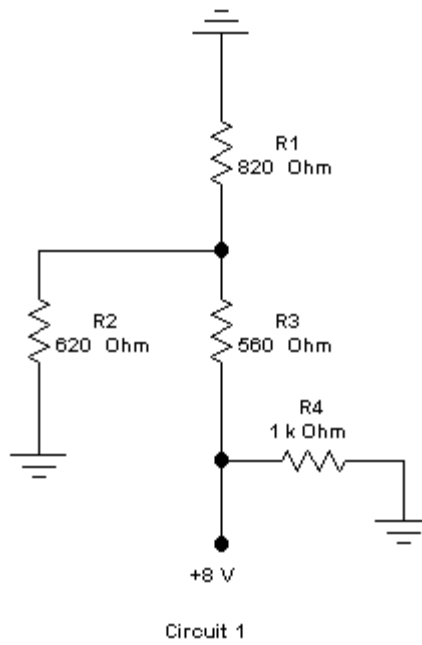
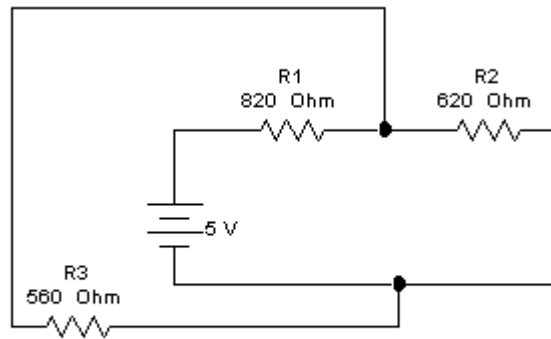


TABLE B: Currents and Voltages in Circuit 1

Quantity	Predicted Value	Measured Value	DMM Range Used	% Error
R_T				
I_T				
I_1				
I_2				
I_3				
I_4				
V_1				
V_2				
V_3				
V_4				



Circuit 2

TABLE C: Currents and Voltages in Circuit 2

Quantity	Predicted Value	Measured Value	DMM Range Used	% Error
R_T				
I_T				
I_1				
I_2				
I_3				
V_1				
V_2				
V_3				

****Don't forget to answer the questions listed on the first page of this lab. ****