

NAME _____

EET 1150 Lab 8 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 calculate 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 calculated 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**.

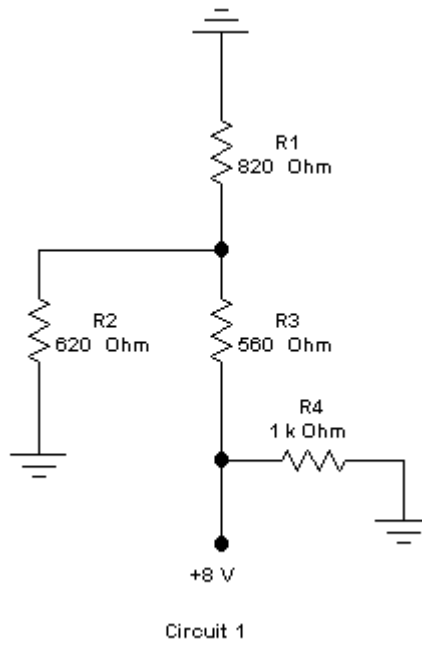
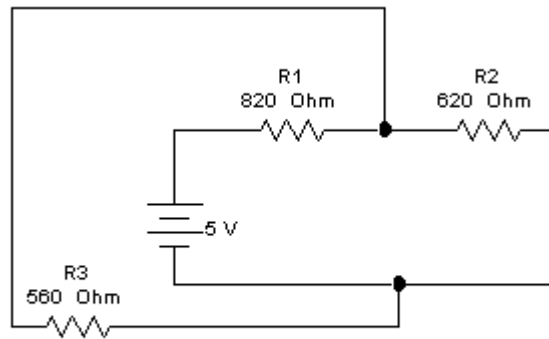


TABLE B: Currents and Voltages in Circuit 1

Quantity	Calculated Value	Multisim 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	Calculated Value	Multisim 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. ****