ECE 109L - SERIES AND PARALLEL CIRCUITS - LAB 9
PARALLEL RESISTOR CIRCUITS

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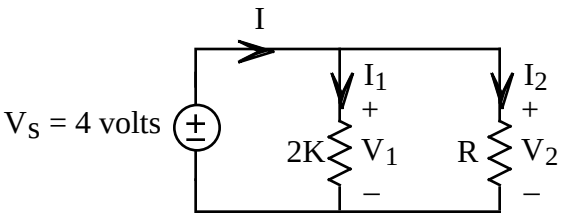
OBJECTIVE

The objective of this lab is to verify the basic properties of parallel resistor circuits for some simple parallel circuits

LAB

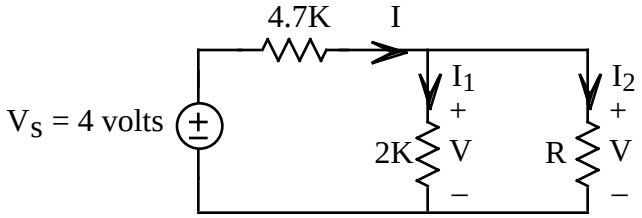
1. Given the following parallel circuit



PARTNER 1: R = 1K PARTNER 2: R = 4.7K

a. Measure your resistor values. Compare with the nominal values
b. **PreLab** - Redraw the circuit with voltage meters to measure the voltages
c. Build the circuit on your breadboard to look **exactly like** your circuit diagram. Then measure all the voltages.
d. Use your results in part (c) to verify that all voltages in the parallel circuit are the same.
e. **PreLab** - Which resistor should have the largest current - why
f. **PreLab** - Redraw the circuit with current meters to measure the currents
g. Measure I_1 and I_2. Was your conjecture in part (e) correct. If not, why not
h. Measure I and then use it together with your results in part (g) to verify KCL
i. Use your measured values of V_1 and V_2 to calculate I_1 and I_2
j. Compare your calculated and measured results of I_1 and I_2

2. Given the circuit of Problem (1) with a 4.7K resistor inserted as follows



PARTNER 1: R = 1K PARTNER 2: R = 4.7K

a. Measure your resistor values. Compare with the nominal values
b. Measure I
c. Make use of your measured value of I to calculate V. Hint - First calculate the voltage across the 4.7K resistor and then make use of KVL to calculate V
d. Make use of your calculated V to calculate I_1 and I_2
e. Measure V, I_1 and I_2
f. Compare your calculated and measured values of V, I_1 and I_2