

4.8.4: Procedure

Part A: Series Circuit

1. The theoretical current of Figure 1 may be found by dividing the power supply voltage by the sum of the two resistors. This should be the same everywhere in the circuit. Compute this value and record it in the first column of Table 1.
2. Set the DC power supply to 10 volts. Construct the circuit of Figure 1.
3. To measure current, set the digital multimeter (DMM) to current mode. Break open the circuit and insert the DMM between the top of power supply and the left end of the 1 k resistor. Record this current in Table 1.
4. Repeat step 2 inserting the DMM in between the 1 k and the 2.2 k, and again between the bottom of the 2.2 k and the bottom of the power supply.
5. The theoretical voltage across each resistor may be found by multiplying the resistor value by the current recorded in Table 1. Compute the voltages and record them in the first column of Table 2.
6. Set the DMM to measure voltage and record the voltages measured across the 1 k and 2.2 k ohm resistors in Table 2.

Part B: Parallel Circuit

7. The voltage across each resistor in Figure 2 should be the same as the source voltage. The two currents may be found by dividing this voltage by the resistor value. Compute these currents and record them in the first column of Table 3.
8. Set the DMM to measure current. Insert the DMM between the top wire and the top of the 1 k resistor. Record the resulting current in the second column of Table 3.
9. Repeat step 2 except inserting the DMM between the top wire and the top of the 2.2 k resistor.
10. Repeat step 2 except inserting the DMM to the immediate right of the top of the power supply, before the 1 k resistor.

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