

Name _____ # _____

Date _____

Name _____ # _____

Section # _____

Name _____ # _____

Parallel Circuit Lab

Check off each procedure upon completion

Part A – Drawing a parallel circuit (Use a pencil)

____ Draw a parallel circuit with a voltage source and the following resistors - 10 ohms, 30 ohms and 30 ohms. (3 pts) (Use symbols from your reference table)

1. ____ Draw a voltmeter into the circuit drawn above where it would be able to measure the voltage of the second resistor. (2 pts)
2. ____ Now draw an ammeter into the circuit drawn above where it would be able to measure the current of the third resistor. (2 pts)

Part B – Circuit Construction

3. ____ Construct a parallel circuit with the following resistors - 10 ohms, 30 ohms and 30 ohms. (IN THAT ORDER) Connect the source to the 10-ohm resistor.

Important tips -

- **Spread out your wires - use one full table of space**
- **Connect your meters LAST!**

4. ____ Measure the following voltages using your voltmeter (2 pts each)

V₁ (Volts)	V₂ (Volts)	V₃ (Volts)

5. ____ Use one of your parallel circuit equations to find V_T (Total Voltage)

Equation (2 pts)
Answer (3 pts)

6. _____ Measure the following currents using your ammeter (3 pts each)

I_T (Amperes)	I₂ (Amperes)	I₃ (Amperes)

7. _____ Use a parallel circuit equation from your reference table to find I₁ .

Show all work for full credit.

Equation (2 pts)

Answer (3 pts)

Accuracy of Written Resistance Values checked against Ohm’s Law

8. _____ Use the information from the other tables to fill in the first two columns of this chart.

9. _____ Calculate the values of each resistors using Ohm's Law (Column 3) (4 pts each)

*** Ohm's Law $R = V/I$ ***

V₁ (Volts)	I₁ (Amperes)	Calculated Value of Resistor from Ohm's Law	Printed Value of Resistor
		ohms	10 ohms
V₂ (Volts)	I₂ (Amperes)	Calculated Value of Resistor from Ohm's Law	Printed Value of Resistor
		ohms	_____ ohms
V₃ (Volts)	I₃ (Amperes)	Calculated Value of Resistor from Ohm's Law	Printed Value of Resistor
		ohms	_____ ohms

10. _____ Name a part of your circuit that had resistance that was never discussed in this lab? (4 pts)

11. _____ Find the total resistance of this circuit using two different equations. Show all work for full credit. (Note: Use the **printed** values of the resistors)

Equation 1 (5 pts)

Equation 2 (5 pts)

Answer _____

Answer _____

Summary Questions

1. If you added a 54-ohm resistor in parallel to your circuit, approximately what would its potential difference would be? **(4 pts)**

Would that 54-ohm resistor have more or less current than your 30-ohm resistor? **EXPLAIN (4 pts)**

2. If you attached the three resistors you were given today in a series circuit, would your new circuit produce more or less total current? **Support your answer with a drawing and calculations. (4 pts)**
(Assume the source voltage does not change)

3. If you had a stronger voltage source how would that effect the size of the total current in your parallel circuit? **EXPLAIN (4 pts)**

4. Suppose you were given a resistor without markings on it to tell you its value. Describe how you could you use the supplies you were given today to find the value of the unknown resistor. **EXPLAIN (4 pts)**