Kirchhoff's Law Quick Sheet

Print Last Name giftakis Print First Name ben

Section____ Date_____ TA_____

Lab Partner_____

(1) **Individual Resistors Measured (34405A)** R_1 = .005 kilohms R_2 = .01 kilohms R_3 = .015 kilohms

(2) **Parallel Combination Measured (34405A)** **Experimental:** R_p = .00272 kilohms

Theoretical: $R_p = [1/R_1 + 1/R_2 + 1/R_3]^{-1}$ = 0.00273 kilohms (use measured values of R)

Series Combination Measured (34405A) **Experimental:** R_s = .03 kilohms

Theoretical: $R_s = R_1 + R_2 + R_3$ = .03 kilohms (use measured values of R)

(3) **Study of Simple Circuits: Kirchhoff's Voltage Law**

Applied Voltage V_{emf} = 10v (Ten Volts) **Part 3B Experimental:** I = 330mA

Measured (Agilent 34405A)	**Predicted V = IR (Use I Experimental & R Measured)**
All values should be positive.	All values should be positive.
V_1 = 1.67 V	V_1 = 1.65 V
V_2 = 3.33 V	V_2 = 3.3 V
V_3 = 5 V	V_3 = 4.95 V

Verification of Kirchhoff's Law $\mathbf{V_{emf} = V_1 + V_2 + V_3}$

Using Measured values: V_{emf} = 10V Using Predicted values: V_{emf} = 10V

(4) **Study of Simple Circuits: Kirchhoff's Current Law**

Applied Voltage = _____ (Five Volts)

Individual Measured Voltages and Currents. The node will be the low potential for measurements.

(Measured results will be both positive and negative.)

I_1 = _____ V_1 = _____

I_2 = _____ V_2 = _____

I_3 = _____ V_3 = _____

Predicted Currents (Use voltages measured in **Part (4)**, and the above **Part (1)** resistor measurements.)

I_1^* = _____ I_2^* = _____ I_3^* = _____

Verification of Kirchhoff's Current Law $\mathbf{I_1 + I_2 + I_3 = 0}$

Using Measured values from Part 4B: $I_1 + I_2 + I_3$ = _____

Using Predicted Values from Part 4C: $I_1^* + I_2^* + I_3^*$ = _____