

WORKSHEET SERIES P4

Student Name _____ date _____ MB# _____

Students should be able to Calculate, Measure and Compare fundamental characteristics of a series circuit.

- **Measure (A):** The student will use a Digital Multimeter (DMM), to measure the current (I), voltage (E), and resistance (R) for the P4 circuit on the Miniboard Series Trainer (simulator).
- **Calculate(B):** The student will use the principles of ohms law to calculate, current (I), voltage (E), and resistance (R) for the P4 Circuit using the measurements taken with the DMM on the Miniboard Series Trainer (simulator) Part A.
- **Compare (C):** The student will then compare the results of the measurements taken and those calculated using the DMM measurements to compare.

Part A Measure

Measuring Voltages:

Measure and record Battery Voltage a _____

Measure and record Voltage Drop for resistor R1 b _____

Measure and record Voltage Drop for resistor R2 c _____

Measure and record Total Voltage Drop for series circuit P4 d _____

Measuring Resistance:

Measure and Record resistance of resistor R1 e _____

Measure and Record resistance of resistor R2 f _____

Measure and Record total resistance (R_t) for circuit P4 g _____

Measuring Amperage

Measure and Record the total amperage (I_t) of circuit P4 h _____

Part B Calculate

Calculate Voltage (R X I)

Calculate Voltage Drop by multiplying resistance x amperage for each resistor.

R1 voltage drop (e x h) i _____

R2 voltage drop (f x h) j _____

Circuit P4 voltage drop (i + j sum k _____

Circuit P4 voltage drop Calculated (gx h) l _____

Calculate Resistance (E / I)

Calculate Resistance by dividing voltage by amperage.

R1 Resistance (b / h) m _____

R2 Resistance (c / h) n _____

Circuit P4 (Rt) Resistance Total (l + m) sum o _____

Circuit P4 Calculated Resistance Total (d/h) p _____

Calculate Amperage (E / R)

Circuit P4 (It) Amperage Total (d / g) q _____

Part C Compare

Record measured and calculated results to complete the following table. Note: letters in each cell refer to your answers above. (Measured and calculated readings should be less than + - 5%)

Voltages	Measured	Calculated		< 5% Difference Y / N
R1 voltage drop	b	i		
R2 voltage drop	c	j	Volt drop sum	
P4 total voltage drop	d	l	k	
Resistance	Measured	Calculated		
R1 resistance	e	m		
R2 resistance	f	n	Resistance Sum	
P4 resistance total (Rt)	g	p	o	
Amperage	Measured	Calculated		
P4 circuit amperage	h	q		