

WORKSHEET

SERIES P8

Student Name _____ date _____ MB# _____

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

- **Measure:** The student will use a Digital Multimeter (DMM), to measure the current (I), voltage (E), and resistance (R) for the Circuit on the P8 circuit on the Miniboard Series Trainer (simulator).
- **Calculate:** The student will use the principles of ohms law to calculate, current (I), voltage (E), and resistance (R) for the P8 Circuit using the measurements taken with the DMM on the Miniboard Series Trainer (simulator).
- **Compare:** The student will then compare the results of the measurements taken and those calculated using the DMM measurements to calculate.

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 Voltage Drop for resistor R3 d _____

Measure and record Total Voltage Drop for series circuit P8 e _____

Measuring Resistance:

Measure and Record resistance of resistor R1 f _____

Measure and Record resistance of resistor R2 g _____

Measure and Record resistance of resistor R3 h _____

Measure and Record total resistance (Rt) or circuit P8 i _____

Measuring Amperage

Measure and Record the amperage of circuit P8 j _____

Part B Calculate

Calculate Voltage (RXI)

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

R1 voltage drop	(f x j)	k	_____
R2 voltage drop	(g x j)	l	_____
R3 voltage drop	(h x j)	m	_____
Circuit P8 Total voltage drop	(k + l + m)	Sum	n_____
Circuit P8 Total voltage drop Calculated	(i x j)	o	_____

Calculate Resistance (E/I)

Calculate Resistance by dividing voltage by amperage.

R1 Resistance	(b / j)	p	_____
R2 Resistance	(c / j)	q	_____
R3 Resistance	(d / j)	r	_____
Circuit P8 (Rt) Resistance Total	(I + j + k)	Sum	s_____
Circuit P8 Calculated Resistance Total	(e x j)	t	_____

Calculate Amperage (E/R)

Circuit P8 (It) Amperage Total	(e / i)	u	_____
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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	k		
R2 voltage drop	c	l		
R3 voltage drop	d	m	Volt drop sum	
P8 total voltage drop	e	o	n	
Resistance	Measured	Calculated		
R1 resistance	f	p		
R2 resistance	g	q		
R3 resistance	h	r	Resistance Sum	
P8 resistance total (Rt)	i	t	s	
Amperage	Measured	Calculated		
P8 circuit amperage	j	u		