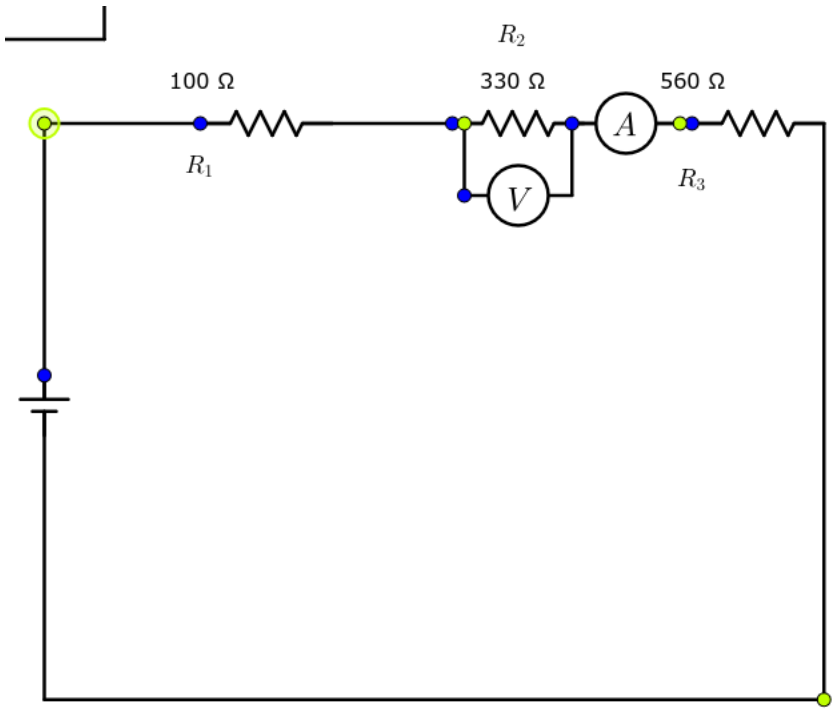
1 • Series

1.1 Circuit



1.2 Data

1.2.1 Theoretical

Resistor	Resistance (ohm)	Voltage (V)	Current (A)
0.0000	990.0000	1.5000	0.0015
1.0000	100.0000	0.1515	0.0015
2.0000	330.0000	0.5000	0.0015
3.0000	560.0000	0.8485	0.0015

Figure 1: Resistor 0 is the complete circuit with all three resistors.

1.2.2 Measured

Resistor	Resistance (ohm)	Voltage (V)	Current (A)
0.0000	976.0000	1.5850	0.0015
1.0000	98.6000	0.1600	0.0015
2.0000	326.0000	0.5320	0.0015
3.0000	549.0000	0.8970	0.0015

Figure 2: Resistor 0 is the complete circuit with all three resistors.

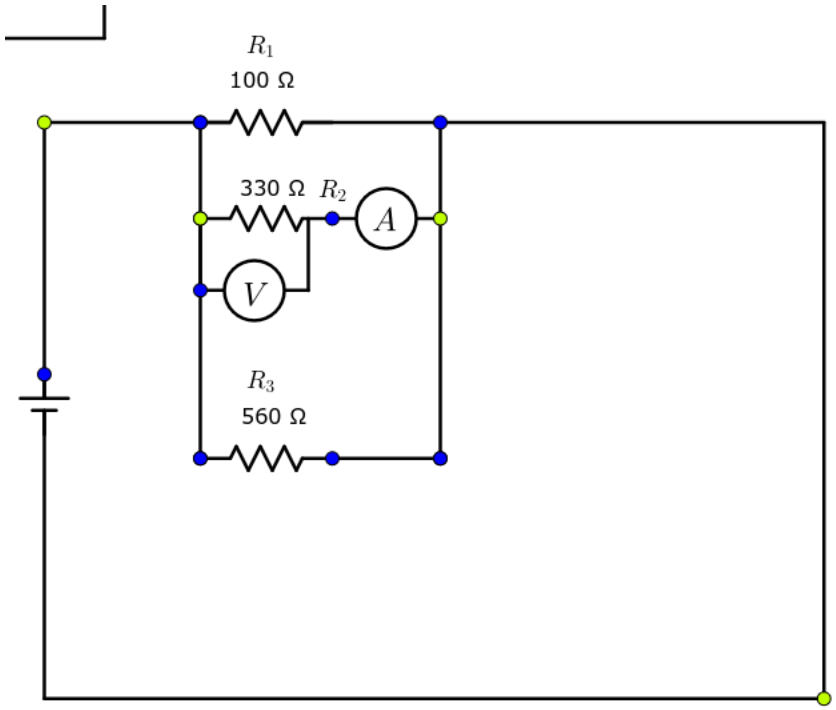
1.3 Questions

1. The experimental results agree with the theory, where the total resistance of resistors in series is the sum of the resistance of each individual resistor and current through resistors in series stays constant while voltage drops in between each resistor.

2. Our experimental results are very close to our theoretical results, with a very small amount of difference between them.

2 • Parallel

2.1 Circuit



2.2 Data

2.2.1 Theoretical

Resistor	Resistance (ohm)	Voltage (V)	Current (A)
0.0000	67.4945	1.5000	0.0222
1.0000	100.0000	1.5000	0.0150
2.0000	330.0000	1.5000	0.0045
3.0000	560.0000	1.5000	0.0027

Figure 3: Resistor 0 is the complete circuit with all three resistors.

2.2.2 Measured

Resistor	Resistance (ohm)	Voltage (V)	Current (A)
0.0000	66.8000	1.5410	0.0226
1.0000	98.6000	1.5410	0.0155
2.0000	326.0000	1.5410	0.0046
3.0000	549.0000	1.5410	0.0027

Figure 4: Resistor 0 is the complete circuit with all three resistors.

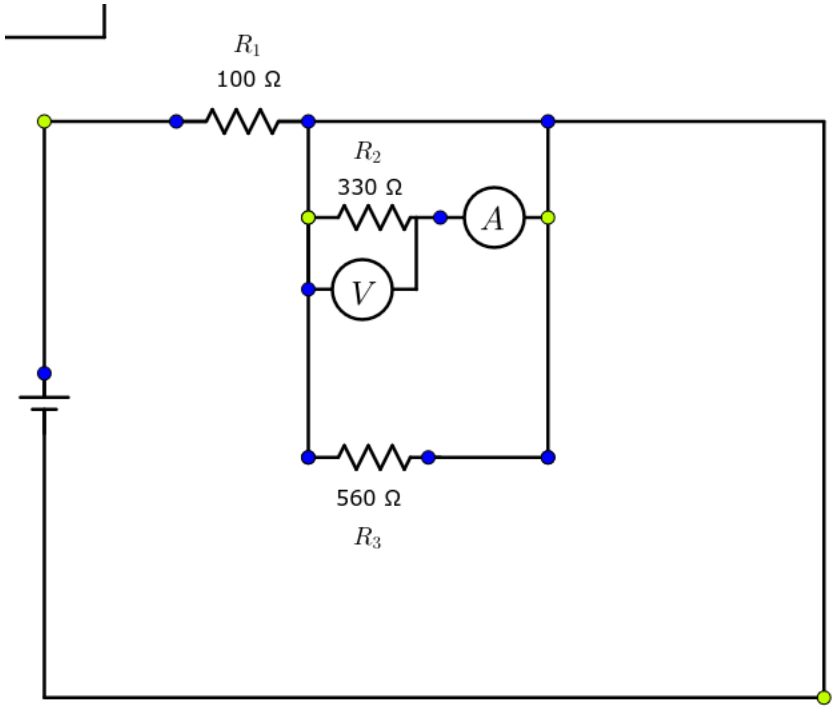
2.3 Questions

1. The experimental results agree with the theory, where the total resistance of resistors in parallel is the reciprocal of the sum of the reciprocals of the resistances of each indivudual resistor and voltage through resistors in parallel stays constant while current drops in between each resistor.

2. Our experimental results are very close to our theoretical results, with a very small amount of difference between them.

3 • Combo

3.1 Circuit



3.2 Data

3.2.1 Theoretical

Resistor	Resistance (ohm)	Voltage (V)	Current (A)
0.0000	307.6404	1.5000	0.0049
1.0000	100.0000	0.4876	0.0049
2.0000	330.0000	1.0124	0.0031
3.0000	560.0000	1.0124	0.0018

Figure 5: Resistor 0 is the complete circuit with all three resistors.

3.2.2 Measured

Resistor	Resistance (ohm)	Voltage (V)	Current (A)
0.0000	303.0000	1.5900	0.0051
1.0000	98.6000	0.5160	0.0051
2.0000	326.0000	1.0720	0.0032
3.0000	549.0000	1.0730	0.0019

Figure 6: Resistor 0 is the complete circuit with all three resistors.

3.3 Questions

1. The experimental results agree with the theory, which is a combination of both the series and parallel theories mentioned above.

2. Our experimental results are very close to our theoretical results, with a very small amount of difference between them.