Eect11: Lab Notebook

Lab Partner: Jonas Smith

Lab 1- Resistor Variability

- The purpose of this lab was to- learn how the resistors vary using 20 resistors with the same color code.
- Equipment needed-A digital multimeter and 20 resistors with the same color code.
- Bench 1

Lab 1 page 2

Resistor color code = Brown, black, red, gold

Resistor value = 1k

Instructions lab 1page 3

- Select a set of 20, 1kΩ resistors.

  Measure and record the resistance of each resistor.

Sample	Measured Value
1	.9915
2	.9898
3	.9994
4	.9903
5	.9900
6	.9845
7	.9904
8	1.0054
9	1.0041
10	.9918
11	.9931
12	.9948
s13	1.0039
14	.9928
15	1.0033
16	.9963
17	1.0048
18	.9971
19	.9876
20	.9826

Lab 1 page 4

This is a picture of our measured values from the 20 resistors

Lab 1 page 5

Average= 0.9942Ω, Minimum= 0.9826Ω, Maximum= 1.0054Ω, Standard Deviation= .0067Ω,

None of our resistors exceeded the part tolerance

	A	B	C	D	E	F	G	H	I	J	K
1	0.9915		AVG		Minimum		Maximum		StandardD		Tolerance
2	0.9898		0.994189474		0.9826		1.0054		0.006724408		0.0
3	0.9994										
4	0.9903										
5	0.99										
6	0.9845										
7	0.9904										
8	1.0054										
9	1.0041										
10	0.9918										
11	0.9931										
12	0.9948										
13	1..0039										
14	0.9928										
15	1.0033										
16	0.9963										
17	1.0048										
18	0.9971										
19	0.9876										
20	0.9826										

- Observations- We observed that it was hard to hold the resistors in place and you sort of had to look quickly to get your numbers. The resistors had very similar numbers. None of them broke the tolerance of + or - 5%.

Lab 1 Page 6

Lab 2- Reading and Sorting Resistors

- The purpose of this lab was to- Learn the resistor color code using 15 resistors which must be sorted from smallest to largest value. Build a resistor kit that includes 15 resistors and, sort resistors based on color code from smallest to largest and measure the resistance of each resistor and verify sorting.
- Equipment needed- a digital multimeter and 15 unique resistors
- Bench 1

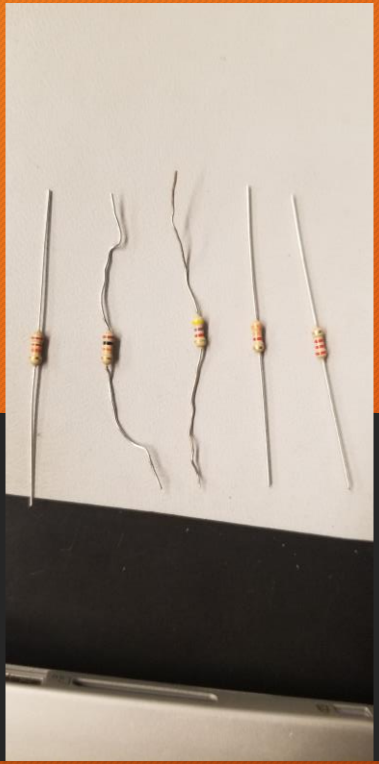
Instructions page 2 lab 2

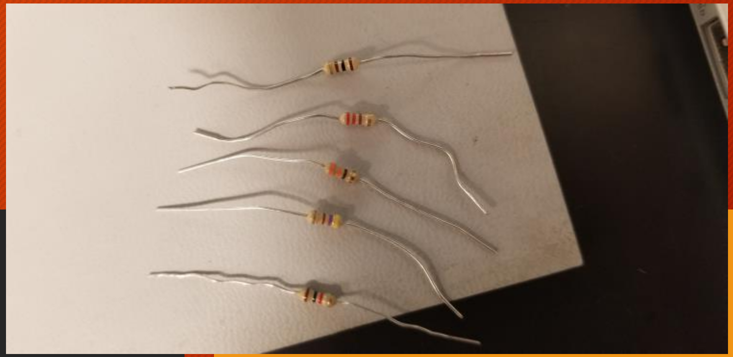
- Build a resistor kit that includes 15 resistors and, sort resistors based on color code from smallest to largest and measure the resistance of each resistor and verify sorting

Lab 2 page 3

here is a list of the resistor values and their color codes

	Color Code
100 =	Br,Bl,Br
220 =	R,R,Br
330 =	Or,Or,Br
470 =	Ye,Vi,Br
1K =	Br,Bl,R
2.2K =	R,R,R
3.3K =	Or,,Or,R
4.7K =	Y,Vi,R
10K =	Vi,Bl,Or
22K =	R,R,R
33K =	Y,Vi,Or
47K =	Br,Bl,Y
100K =	Br,Bl,Y
1M =	Vi,Bl,Gr
10M =	Br,Bl,Blue





Lab 2 page 4

This is a picture of the individual resistors that we measured

Lab 2 page 5

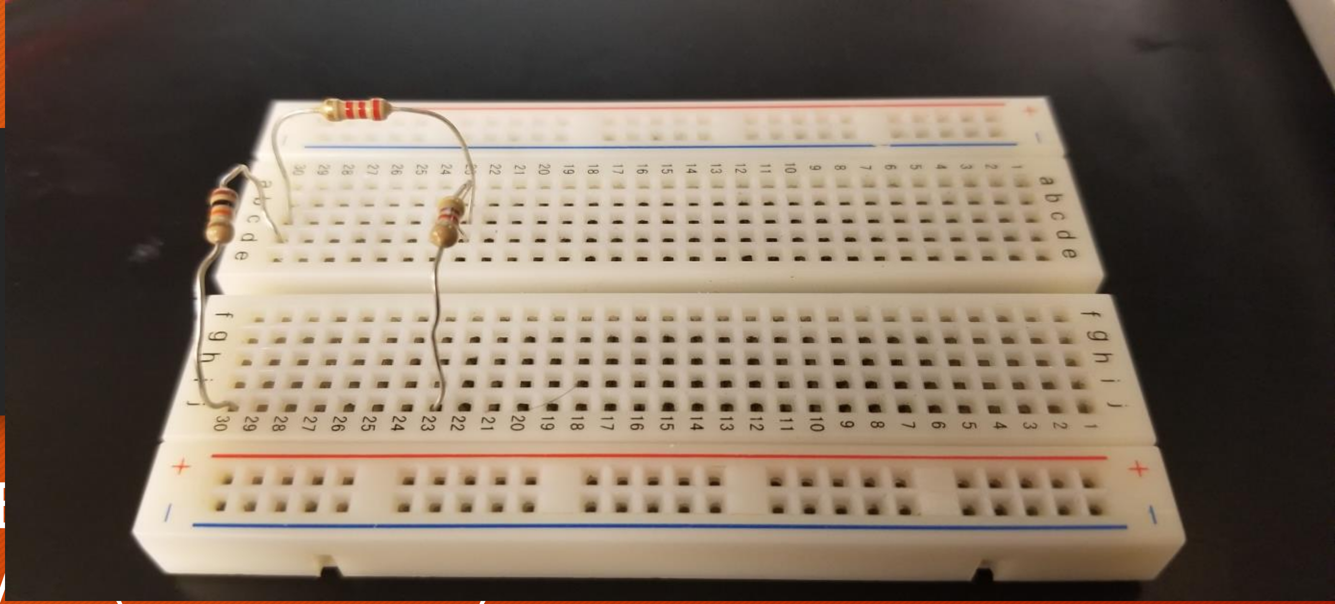
this is a picture of our measured values for each of the 15 resistors

	Color Code	Measured Value in (ohms)
100 =	Br,Bl,Br	97.52 o
220 =	R,R,Br	220.68 o
330 =	Or,Or,Br	321.15 o
470 =	Ye,Vi,Br	465.06 o
1K =	Br,Bl,R	0.9956ko
2.2K =	R,R,R	2.1699 ko
3.3K =	Or,,Or,R	3.2668ko
4.7K =	Y,Vi,R	4.622ko
10K =	Vi,Bl,Or	9.8109ko
22K =	R,R,R	22.205ko
33K =	Y,Vi,Or	33.051ko
47K =	Br,Bl,Y	46.505ko
100K =	Br,Bl,Y	99.24ko
1M =	Vi,Bl,Gr	1.0005Mo
10M =	Br,Bl,Blue	10.177Mo

- Observations- We observed that the resistors vary in measurements from the actual resistance they’re supposed to be.

Lab 2 Page 6

Lab 3- Series Resistors



- The purpose of this lab was to- E
  verify that the simulation, analy
  agree.
- Equipment needed- digital multimeter, Elvis II, Resistors
- Bench 3
- My lab partners for this lab were Elijah Hon, Jeanie hess, and Renee Mata

Instructions page 2 lab 3

- Measure and record the value of each resistor. Connect the resistors as shown in Figure 1. Measure and record the total resistance, RT. Then connect the resistors as shown in Figure 2, the 9V come from the Elvis II (Modular Engineering Educational Laboratory Platform). Then measure and record with the Digital Multimeter the current and voltages of the series circuit.

Lab 3 Page 3

- Figure 1 shows 3 resistors in a Series Circuit
- R1 = 10kΩ
- R2 = 2.2kΩ
- R3 = 4.7kΩ

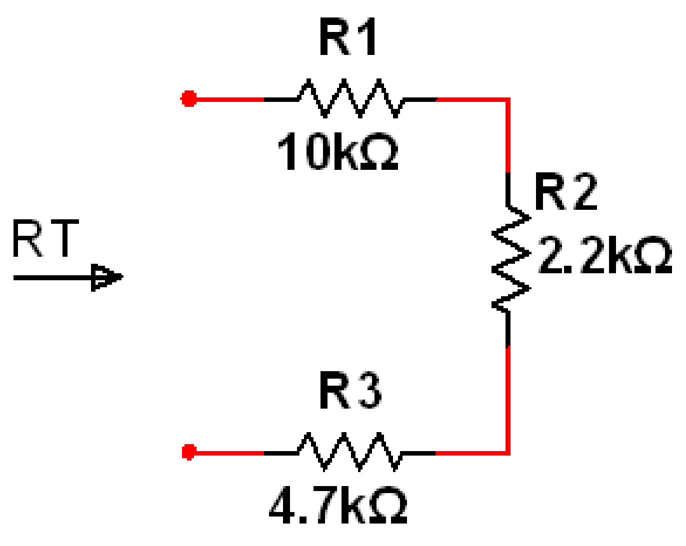


Figure 1

Lab 3 Page 4

	Measured	Calculated	Simulated
R1 =	9.77k	10k	10k
R2 =	2.20k	2.2k	2.2k
R3 =	4.58k	4.7k	4.7k
RT =	16.55k	16.9k	16.9k

Measured = using Digital Multimeter

Calculated = based on color code and Excel values

Simulated = Multisim simulation

1		meausred	calculated	Simulated	
2					
3	R1=	9.77	10	10	kohm
4	R2=	2.2	2.2	2.2	kohm
5	R3=	4.58	4.7	4.7	kohm
6	Rt=	16.55	16.9	16.9	kohm
7					
8	It=	509.1E-3	532.5E-3		ohms
9	V1=	9	9	9	volts
10	VA=	3.66	3.675E+0	3.675	volts
11	VB=	2.48	2.503E+0	2.503	volts

These are pictures of our Measured, Calculated, and Simulated Results for Figure 1

Lab 3 Page 5

- Figure 2 shows 3 resistors in a Series Circuit with a 9V power source
- R1 = 10kΩ
- R2 = 2.2kΩ
- R3 = 4.7kΩ

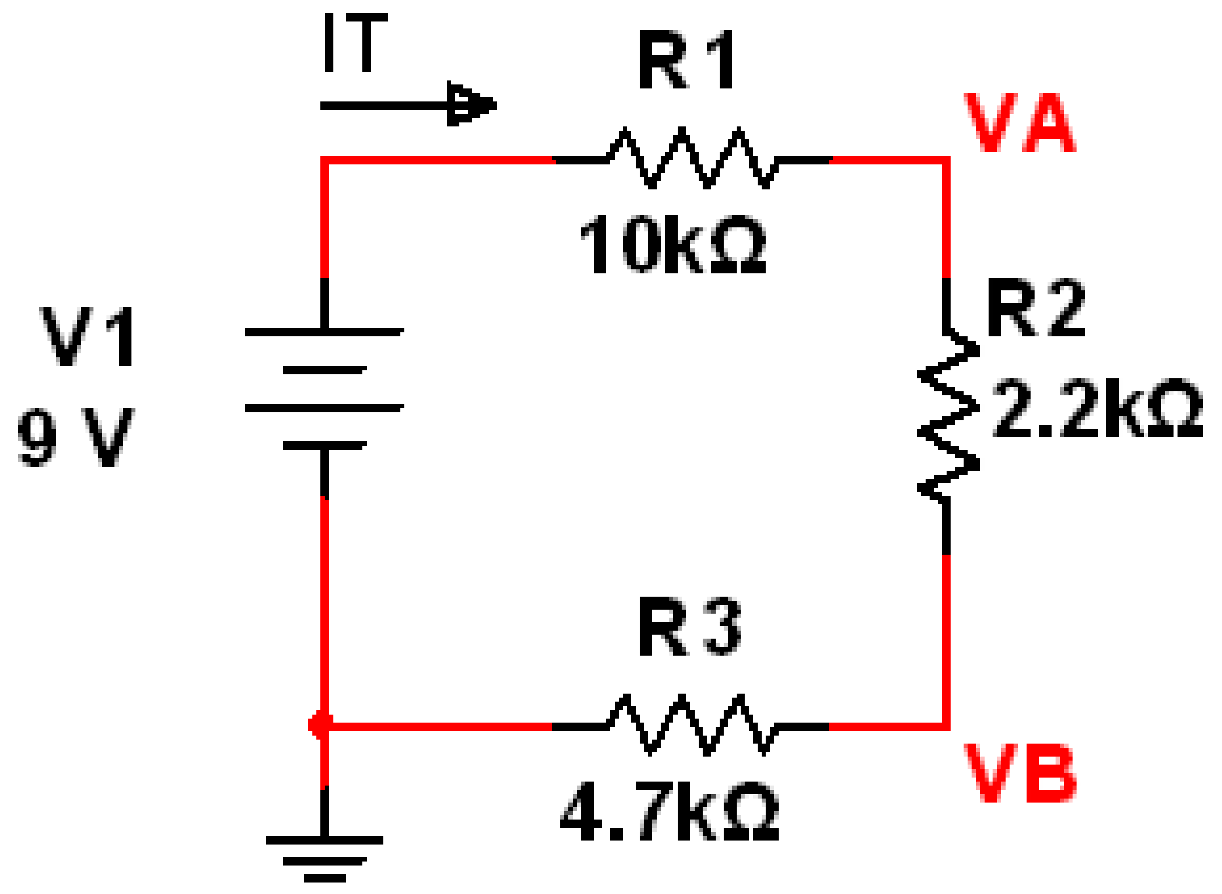


Figure 2

Lab 3 Page 5

	Measured	Calculated	Simulated
IT =	509.1uA	532.5uA	532.548uA
V1 =	9.0V	9.0V	9V
VA =	3.66V	3.675V	3.675V
VB =	2.48V	2.503V	2.503V

Measured = using Digital Multimeter

Calculated = based on color code and Excel values

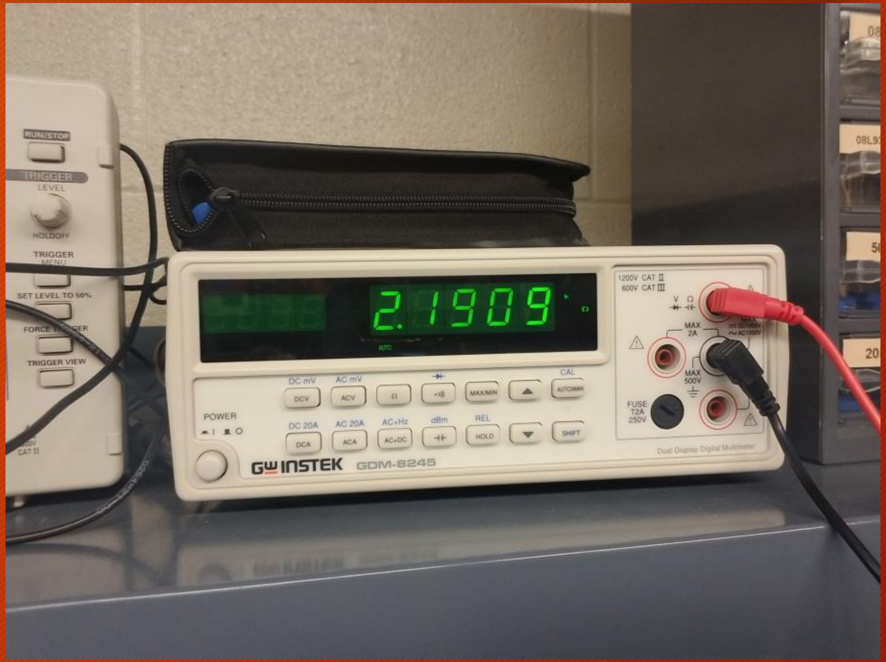
Simulated = Multisim simulation

1		meausred	calculated	Simulated	
2					
3	R1=	9.77	10	10	kohm
4	R2=	2.2	2.2	2.2	kohm
5	R3=	4.58	4.7	4.7	kohm
6	Rt=	16.55	16.9	16.9	kohm
7					
8	It=	509.1E-3	532.5E-3		ohms
9	V1=	9	9	9	volts
10	VA=	3.66	3.675E+0	3.675	volts
11	VB=	2.48	2.503E+0	2.503	volts

These are pictures of our Measured, Calculated, and Simulated Results for Figure 2

Lab 3 Page 6

This is a picture of our Measured RT



This is a picture of our Measured R2 Value

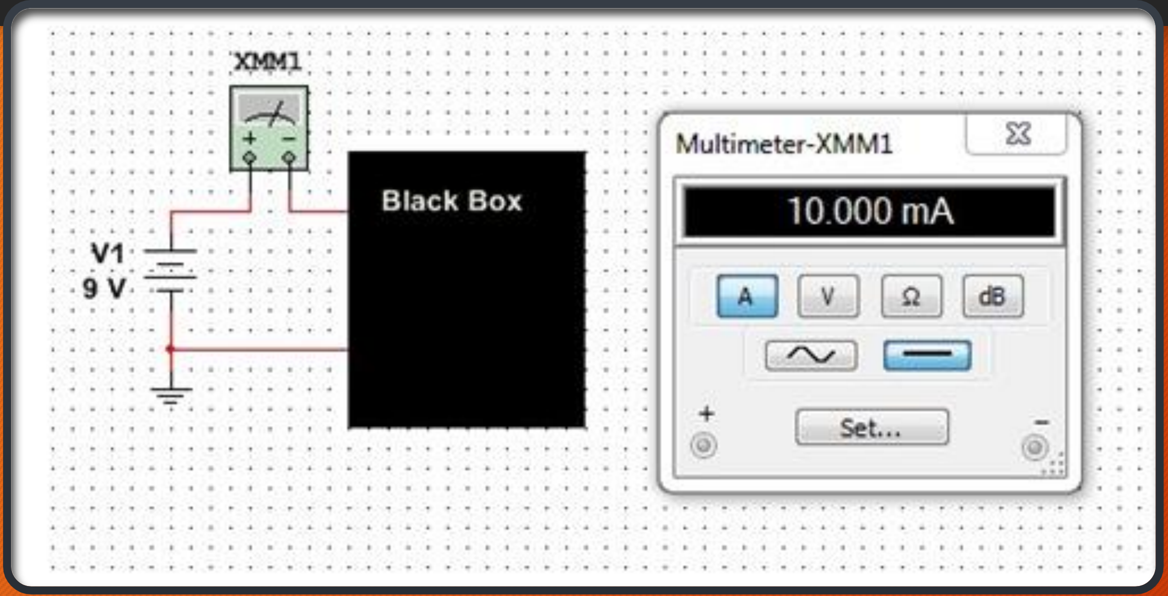
- Observations- We observed how a circuit works in series. It adds in resistance and subtracts in voltage. We learned how to calculate the total resistance in a series circuit, and how to find the voltage without current in lab this week. There is a slight difference in the measured value and the calculated this is most likely do to the equipment’s ability to carry current.

Lab 3 Page 7

Lab 4 – Black Box Design

- The purpose of this lab was to learn about series circuits.
- Equipment needed- digital multimeter, Elvis II, Standard Resistors
- Bench 3

Instructions lab 4 page 2



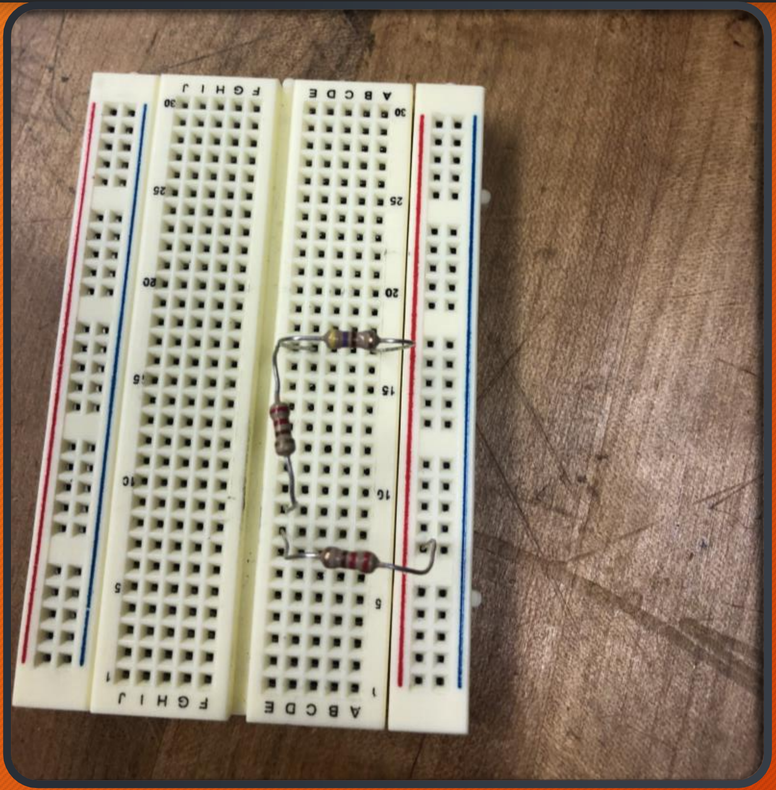
- The voltage applied to a Black Box is 9V and the measured current draw is 10mA. Design a 3 resistor series circuit that meets the voltage and current requirements using “standard” resistor value.

Lab 4 Page 3

- This picture shows our results for design, measured, calculated, and simulated for this lab

	Design	Measured	Calculated	Simulated
V1 =	9	9	9	9
IT =	10	9.77	10	9.89 mA
RT =	900	907	900	910
R1 =	220	469	300	220
R2 =	220	220	300	220
R3 =	470	218	300	470

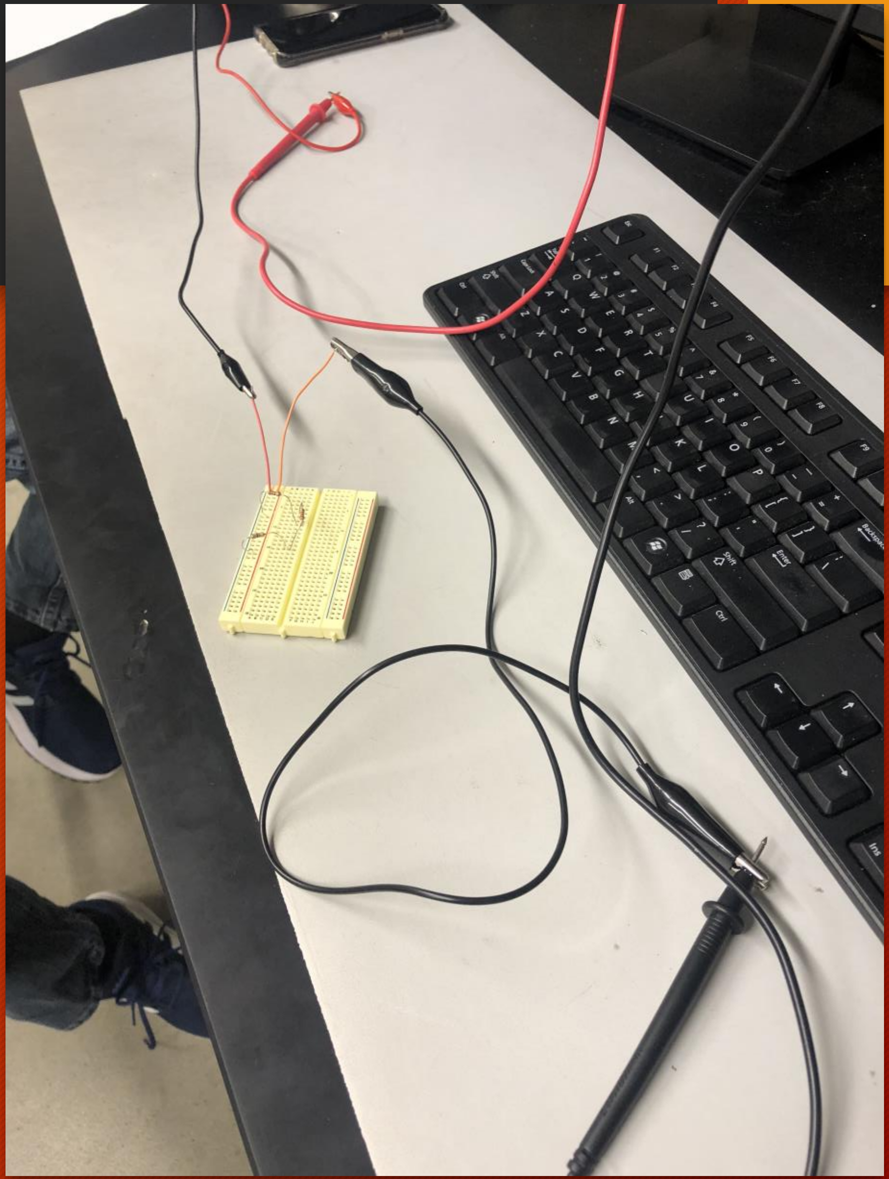
Lab 4 page 4



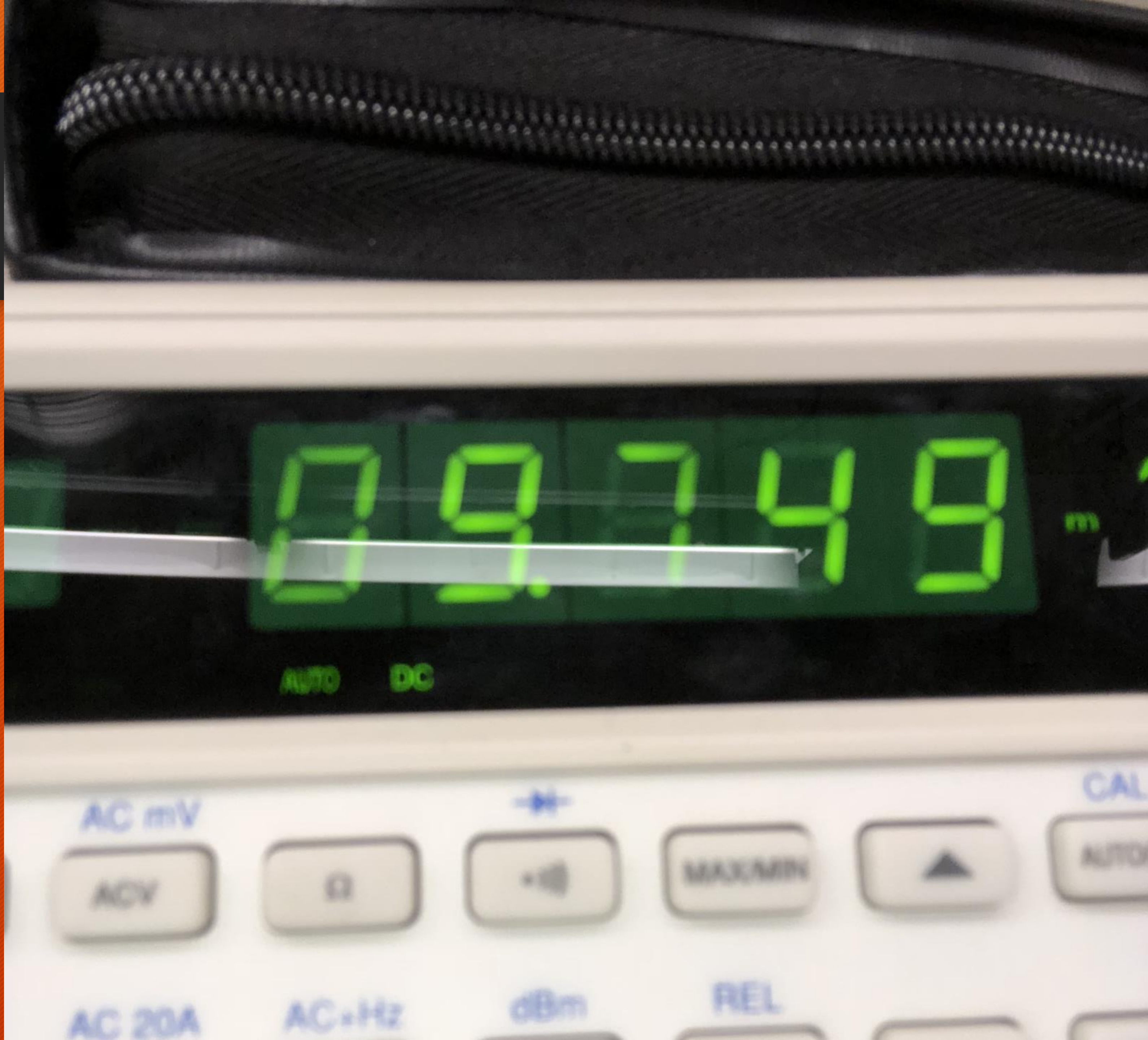
This is a picture of our breadboard set up.

Lab 4 page 5

This is a picture showing how are black and red cables are running to and from our circuit.



Lab 4 page 6



This is a picture of our measured value.

Lab 4 page 7

- This is a picture from our excel for this lab.
- Our voltage was 9v.
- Our current was 10.0x10^-3
- We were able to calculate rt by using Ohm's Law.
- The equation was then R=(V/I) which =(9/.01)

	A	B
1	V =	9
2	I =	10.0E-3
3		
4	RT =	900
5	R1 =	300
6	R2 =	300
7	R3 =	300

Lab 4 Page 8

- Observations- Using Ohms law, we can figure out the Voltage, resistance and current. In this case, using the equation V=IR, we were able to derive which resistors were needed to get the results of 10 mA of current.

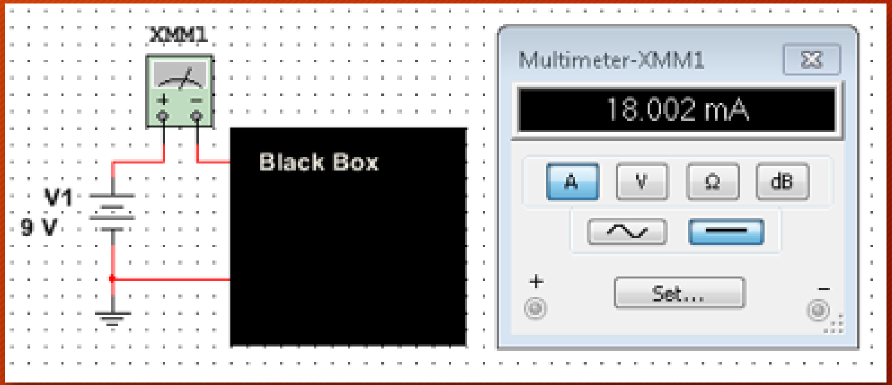
Lab 6 – Black Box Design

- The purpose of this lab was to learn about parallel circuits.
- Equipment needed- digital multimeter, Elvis II, Standard Resistors
- Bench 3

Instructions page 2

lab 6

- The voltage applied to a Black Box is 9V and the measured current draw is 18mA. Design a 2 resistor parallel circuit that meets the voltage and current requirements using “standard” resistor value.



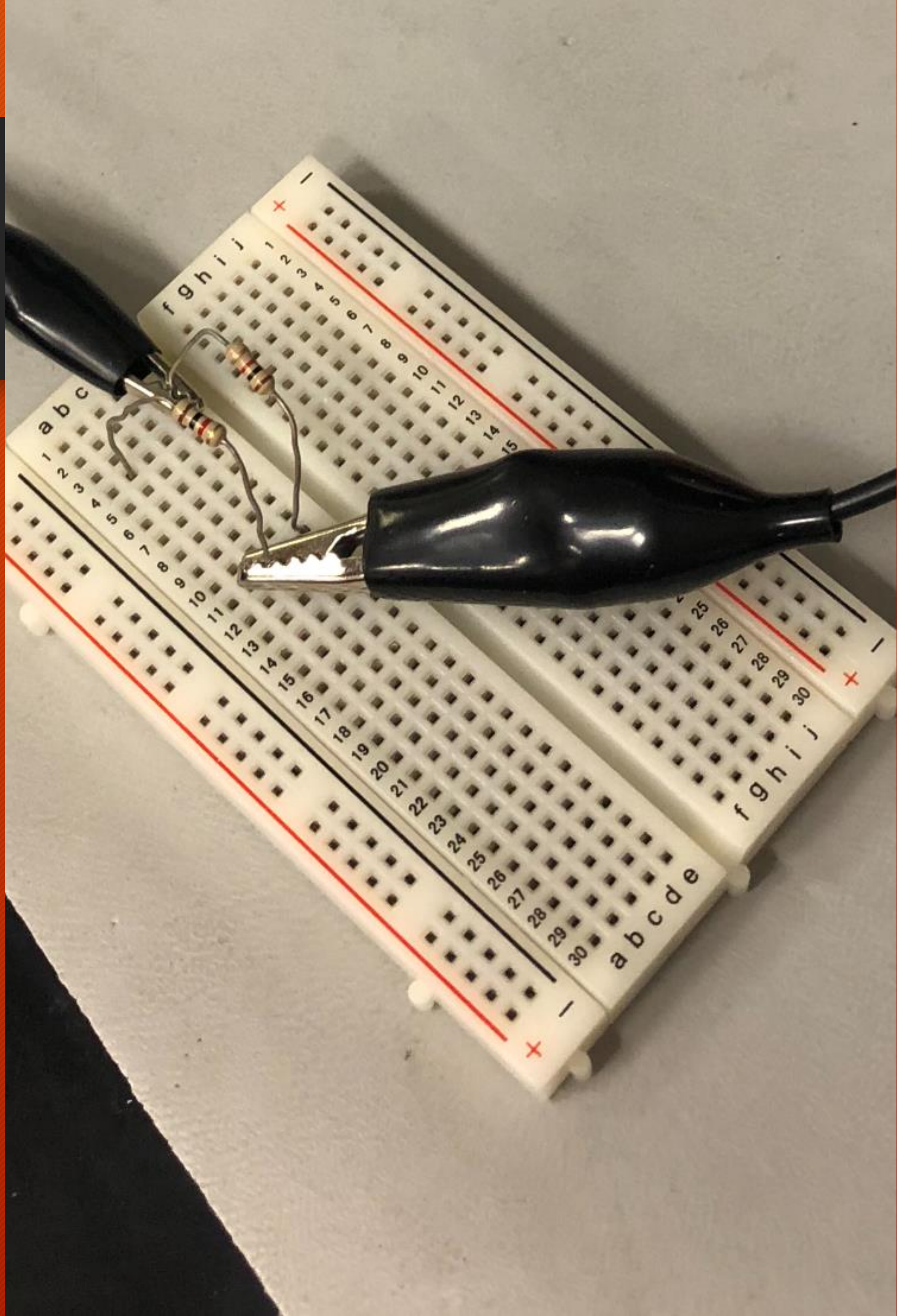
Lab 6 page 3

This picture shows the design, measured, calculated and simulated results.

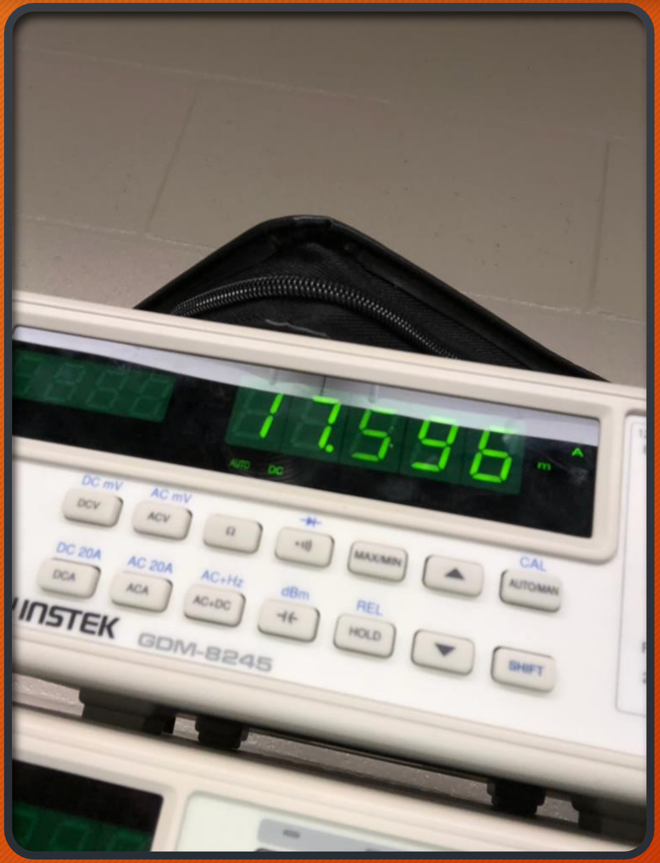
	Design	Measured	Calculated	Simulated
V1 =	9	9	9	9
IT =	17.6	17.6	18	18
RT =	499	499	500	500
R1 =	996	996	1000	1000
R2 =	1001	1001	1000	1000

Lab 6 page 4

- This is our lab 6 breadboard set up.
- 2 resistors in parallel.



Lab 6 page 5



This is a picture of our measured total current.

Lab 6 Page 6

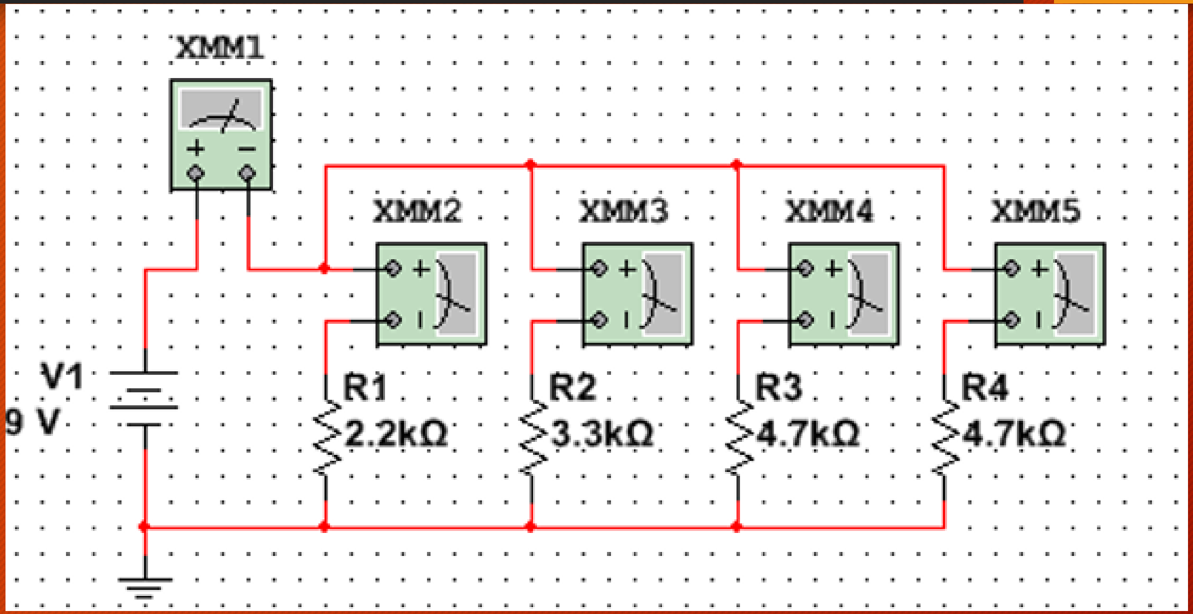
- Observations- Parallel circuits can also be solved using Ohms law. Although it is more complex, you can still use the law to figure out basic circuits. In this case, we had to find the total resistance and figure out what two resistors would give us these readings.

Lab 7 – resistor parallel circuit

- The purpose of this lab was to learn about parallel circuits.
- Equipment needed- digital multimeter, Elvis II, Standard Resistors
- Bench 3

Instructions
lab 7 page 2

- The voltage applied to 4 parallel resistors is 9V. Measure all the resistor values, total current and all the branch currents.



Lab 7 page 3

- This is a picture of our Design and Measured readings for R1, R2, R3,and R4

	Design	Measured
R1 =	2200	2198
R2 =	3300	3297
R3 =	4700	4701
R4 =	4700	4701

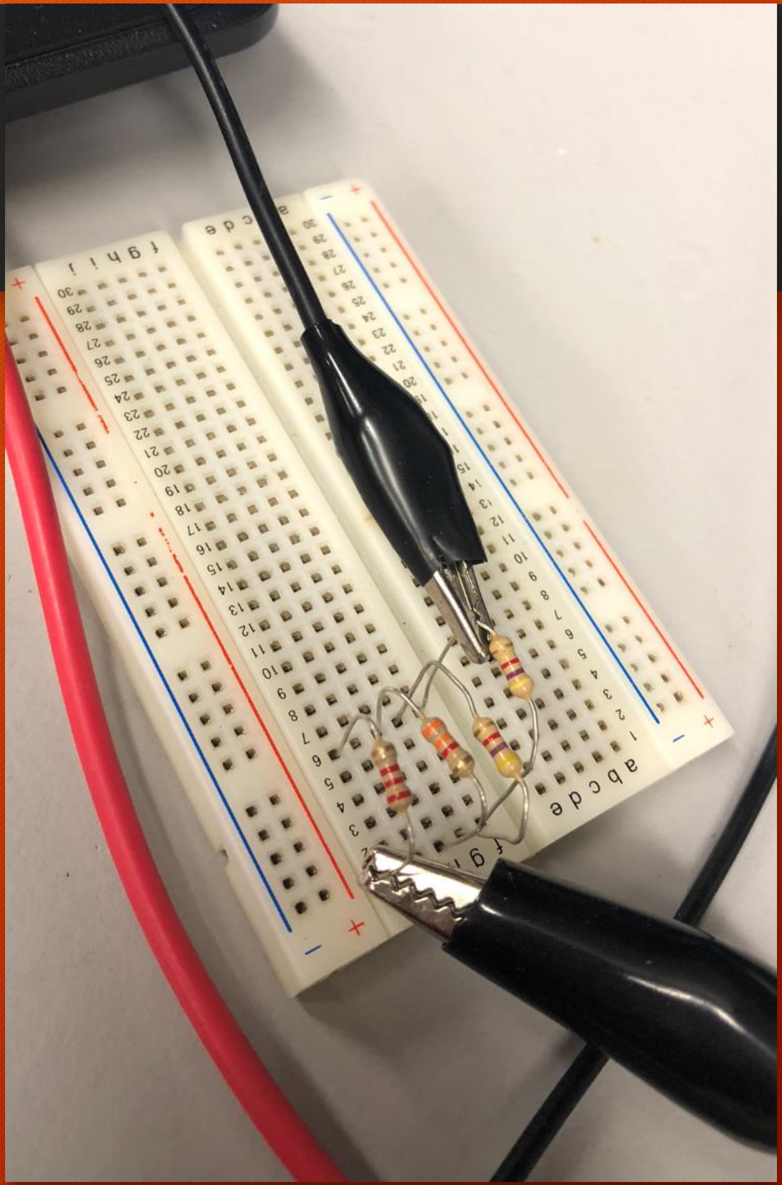
Lab 7 page 4

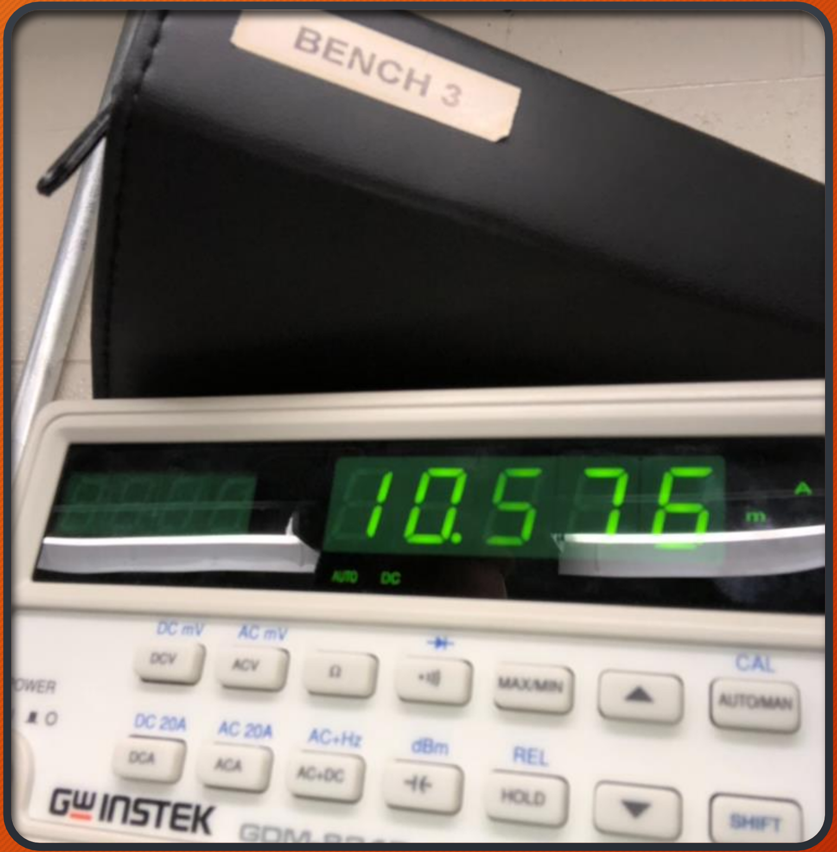
	Measured	Calculated	Simulated
V1 =	9	9	9
RT =	844.8	845.2	845.2
I1 =	4.01 mA	4.1 mA	4.1 mA
I2 =	2.6	2.7 mA	2.7 mA
I3 =	2.1	1.9 mA	1.9 mA
I4 =	1.8	1.9 mA	1.9 mA
IT =	10.57	10.6 mA	10.6 mA

This picture is of our Final Measured, Calculated, and Simulated results for Lab 7

Lab 7 page 5

- This is picture if of our breadboard set up.





Lab 7 page 6

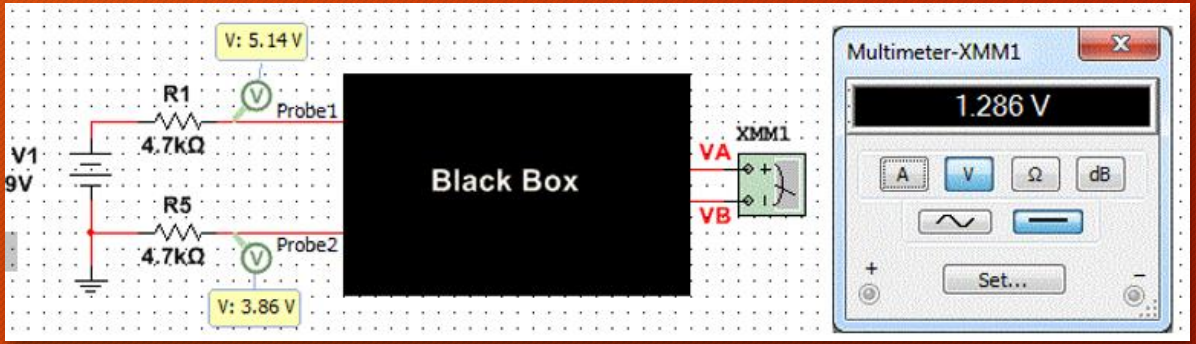
This picture is of our measured IT (Total Current)

- Observations- In a parallel circuit, the resistance is much less than any of the individual resistors. This was a cool discovery.

Lab 7 Page 7

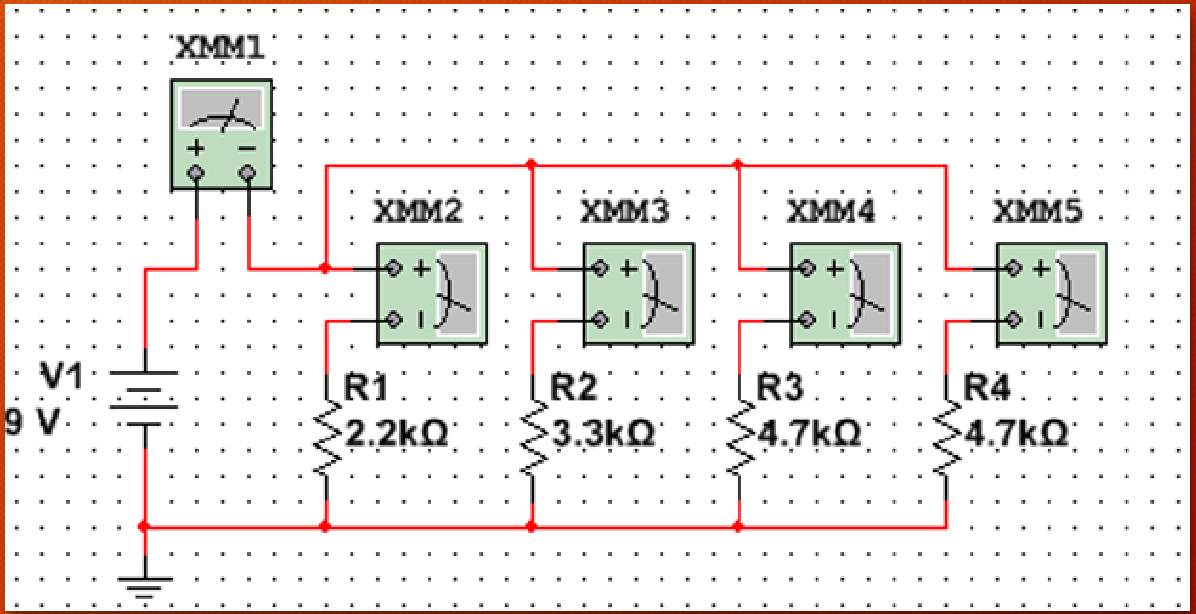
Lab 8 – Black box 3 design

- The purpose of this lab was to Learn about building a circuit that produces exactly 1.3V
- Equipment needed- Multimeter, Elvis II, 5 Standard Resistors, 5 Kohm pot
- Bench 6



Instructions page 2 lab 8

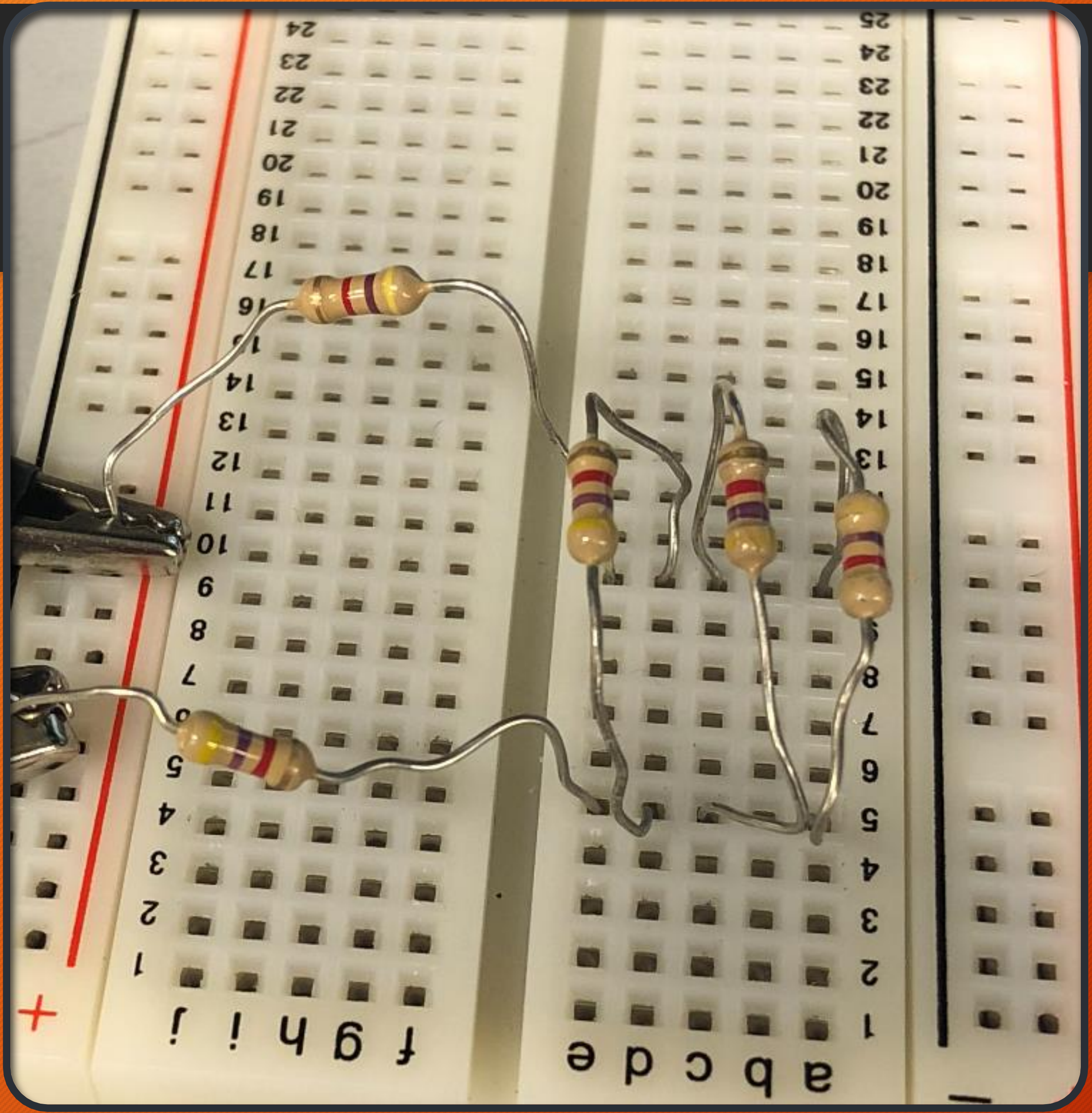
- Using at least 3 equal value resistors (in the Black Box) design a circuit that produces an output voltage of 1.3V. Then adjust R1 so that the output voltage is exactly 1.3V.



Lab 8 page 3

	Measured	Calculated	Simulated
V1 =	9	9	9
RT =	844.8	845.2	845.2
I1 =	4.01 mA	4.1 mA	4.1 mA
I2 =	2.6	2.7 mA	2.7 mA
I3 =	2.1	1.9 mA	1.9 mA
I4 =	1.8	1.9 mA	1.9 mA
IT =	10.57	10.6 mA	10.6 mA

This picture is of our Final Measured, Calculated, and Simulated results for Lab 7

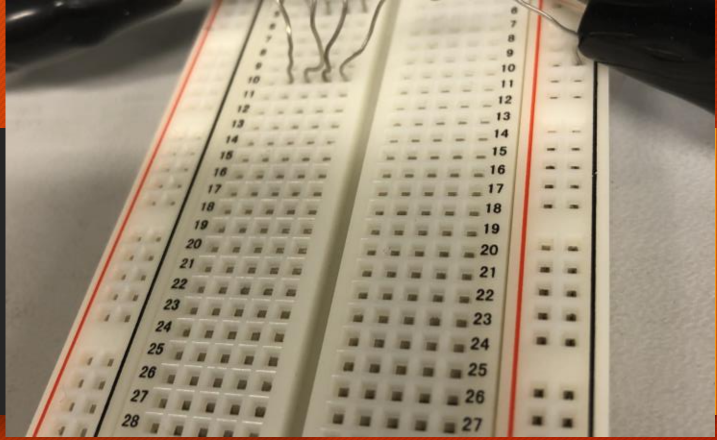


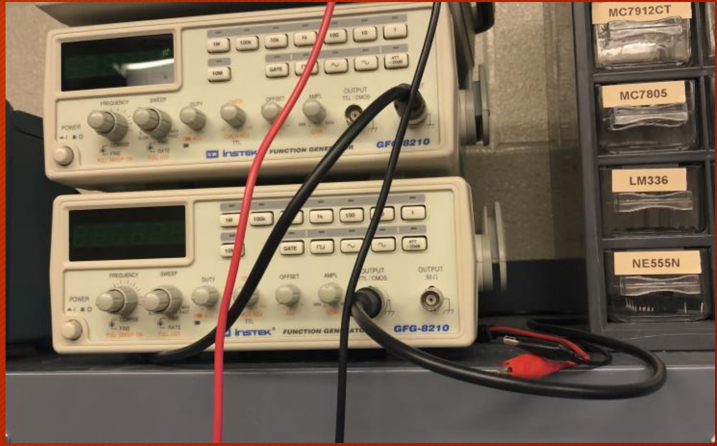
Lab 8 page 4

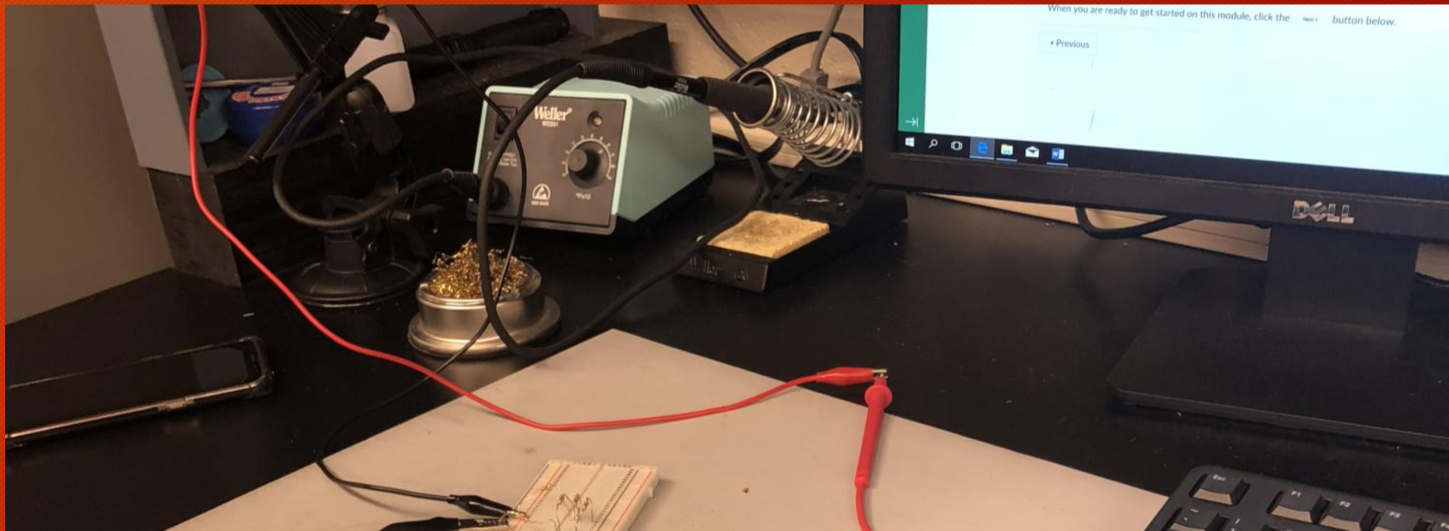
This picture is of our breadboard set up

Lab 8 page 5

- These pictures are of our set up and how our cables are ran from our machines to our board.







- Observations- We learned how to find three equal resistors given a specific voltage drop. With this we could determine the adjustments needed to get the Voltage drop to exactly 1.3V.

Lab 8 Page 6

Lab 10– Series/Parallel Capacitors

- The purpose of this lab was to Experiment with series circuits and parallel combinations of capacitors.
- Equipment needed- LCR Meter, Elvis II, 3 capacitors
- Bench 5

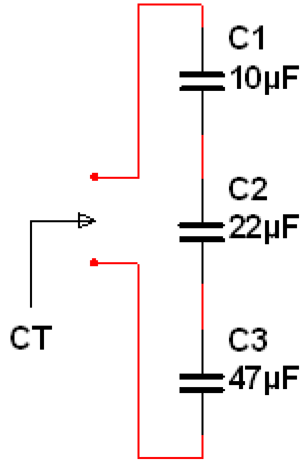


Figure 1

Series Circuit

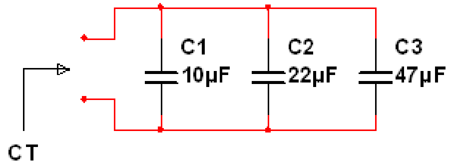


Figure 2

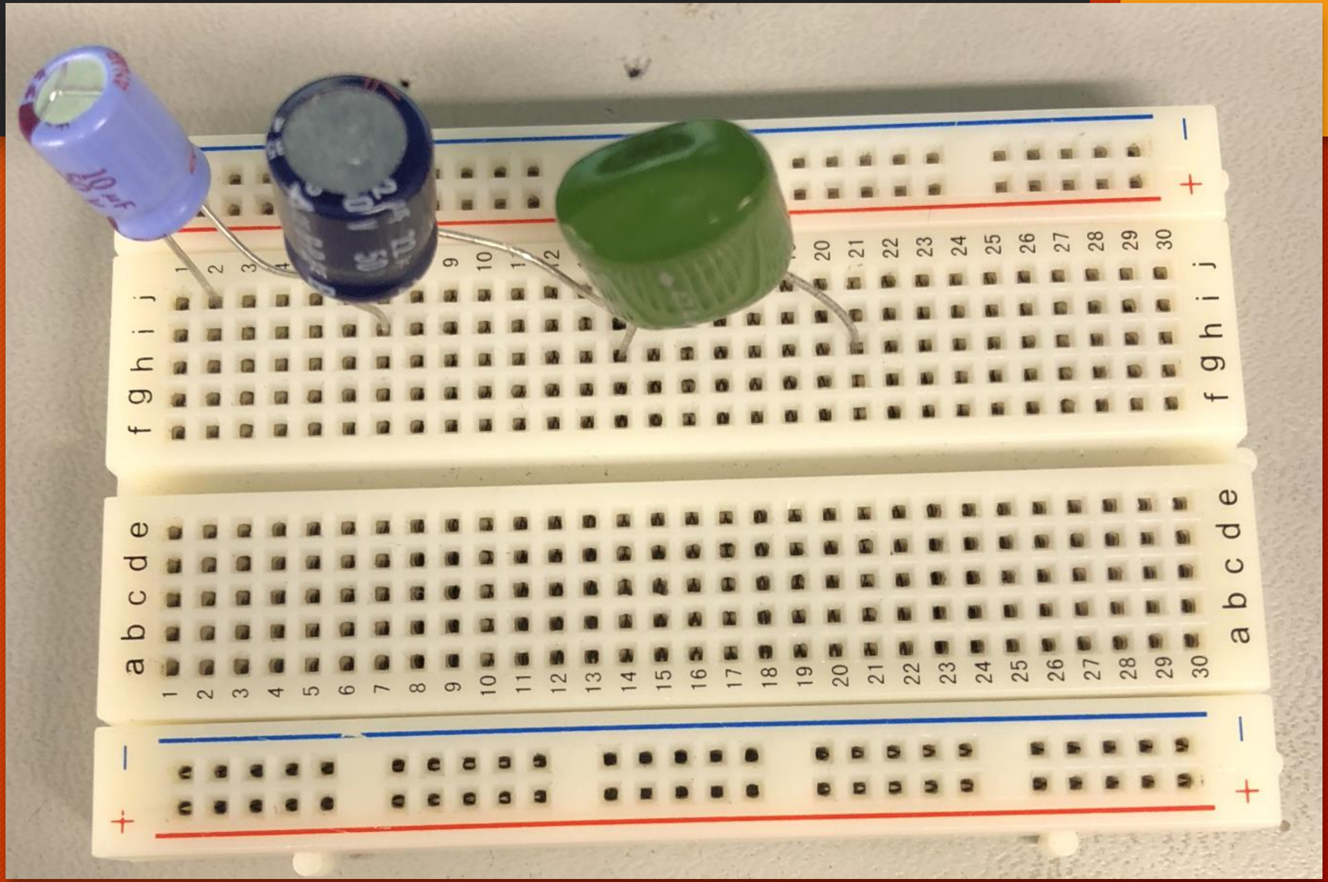
Parallel Circuit

Instructions lab 10 page 2

- Measure and record the capacitance of each capacitor using the LCR meter. Connect the capacitors as shown in Figure 1 and measure and record the total capacitance, CT. Then connect the capacitors as shown in Figure 2 and measure and record the total capacitance, CT.

Lab 10 page 3

- This picture is of our breadboard set up for the series circuit with capacitors



Lab 10 page 4

	Expected	Measured
C1 =	10	9.67
C2 =	22	21.07
C3 =	47	44.41
CT =	6	5.67

This is our Series Circuit expected and measured results

Lab 10 page 5

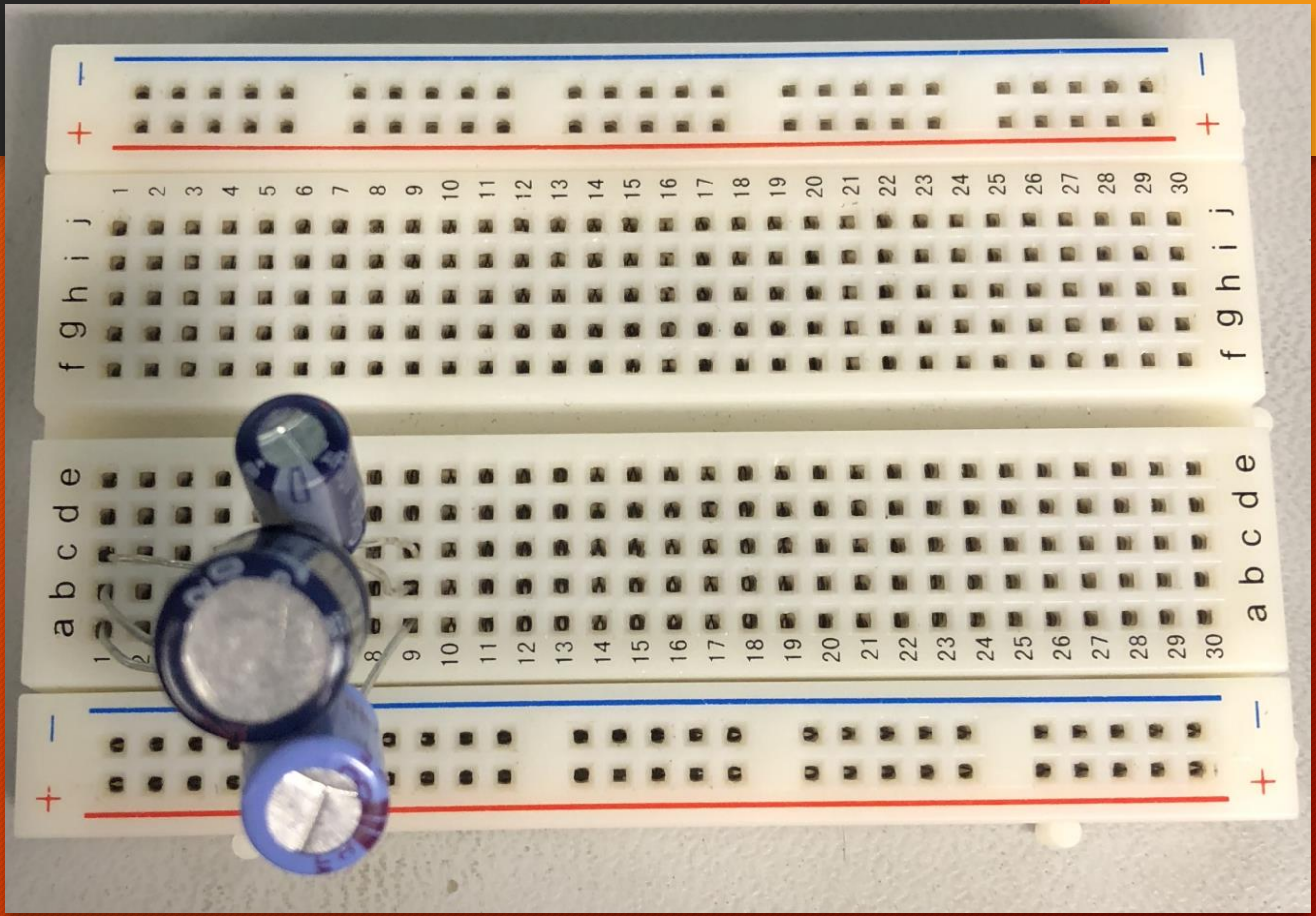
Lab10 Series
Single Frequency AC Analysis @ 1000 Hz

	Variable	Magnitude	Phase (deg)	
1	1/(2*pi*1000*(V(PR1)/I(PR1)))	5.99768 u	90.00000	

This is our Series Circuit Single Frequency AC Analysis @ 1000 Hz

Lab 10 page 6

- This picture is of our breadboard set up for the parallel circuit with capacitors



Lab 10 page 7

	Expected	Measured
C1 =	10	9.67
C2 =	22	21.07
C3 =	47	46.39
CT =	79	75.02

This is our Parallel Circuit expected and measured results

Lab 10 page 8

Lab10 Parallel
Single Frequency AC Analysis @ 1000 Hz

	Variable	Magnitude	Phase (deg)
1	1/(2*pi*1000*(V(PR1)/I(PR1)))	79.00000 u	90.00000

This is our Parallel Circuit Single Frequency AC Analysis @ 1000 Hz

Lab 10 page 9

This picture is of our 10uf capacitor

Lab 10 page 10

This picture is of our 10uf capacitor reading. We measured this with an LCR meter

Lab 10 page 11

This picture is of our 22uf capacitor

Lab 10 page 12

This picture is of our 22uf capacitor reading. We measured this with an LCR meter.

Lab 10 page 13

This picture is of our 47uf capacitor

Lab 10 page 14

This picture is of our 22uf capacitor reading. We measured this with an LCR meter.

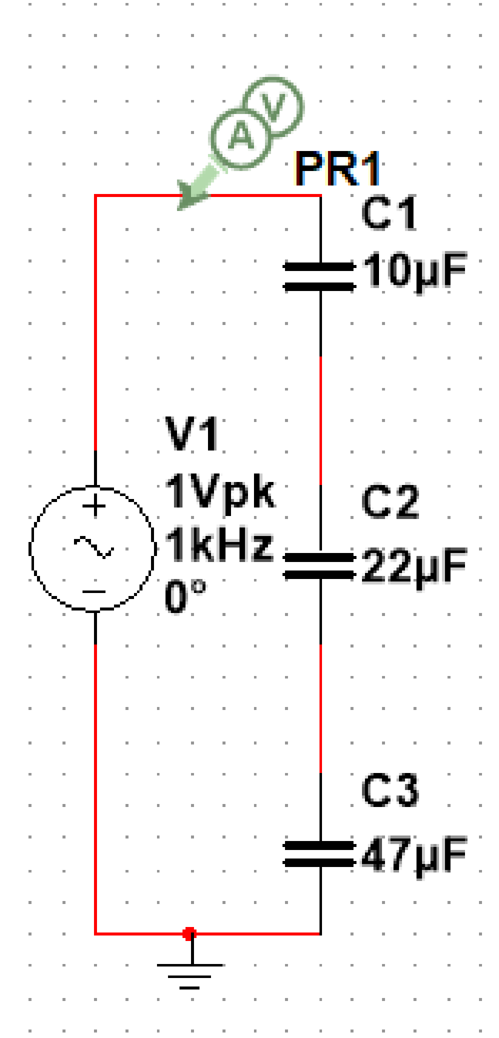
Lab 10 page 15

This picture is of our series circuit built with an ac voltage and three capacitors.

C1= 10uF

C2= 22uF

C3= 47uF



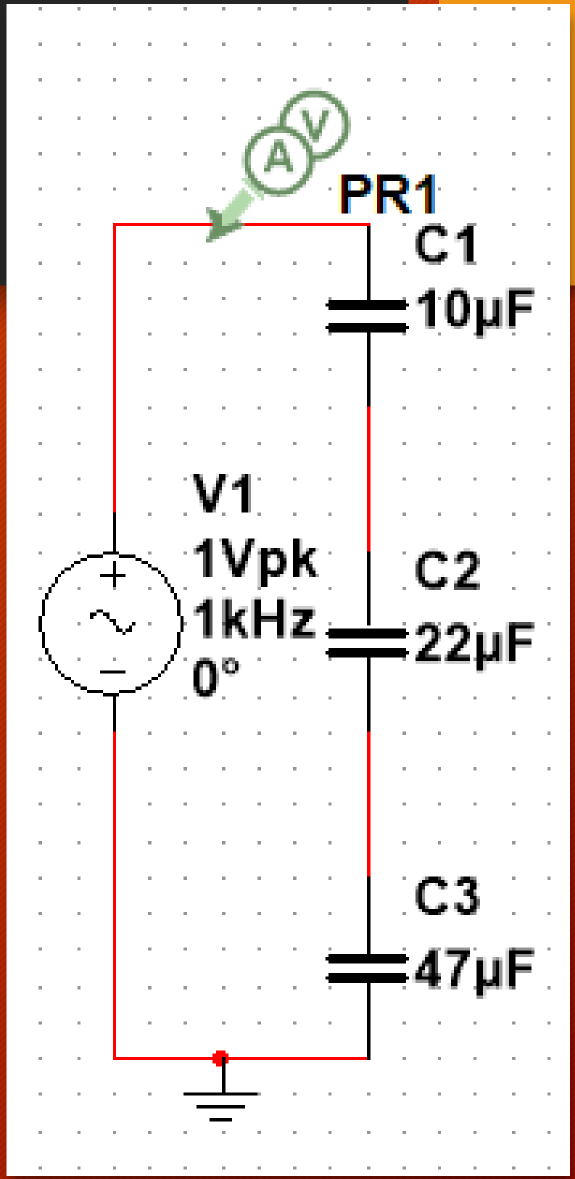
Lab 10 page 16

This picture is of our series circuit built with an ac voltage and three capacitors.

C1= 10uF

C2= 22uF

C3= 47uF



- Observations- Our circuits were series and parallel. The mode is set to C/R. The display is set to value. The speed is set to slow. We observed that our values we measured were relatively close to what we expected them to be.

Lab 10 Page 17

Lab 11– RC LAB

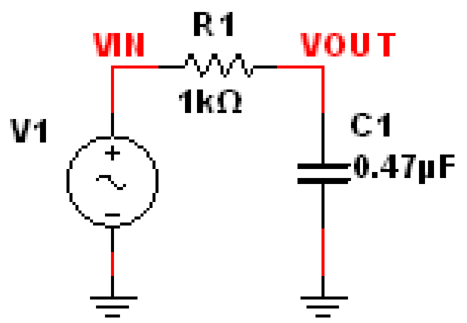


Figure 1
RC Circuit

- The purpose of this lab was to Experiment with RC (Resistor & Capacitor) circuits. and parallel combinations Of capacitors.
- Equipment needed- LCR Meter, Oscilloscope, Function Generator, Elvis II, 10uF capacitor, 22uF capacitor, 47uF capacitor, and a resistor
- Bench 5

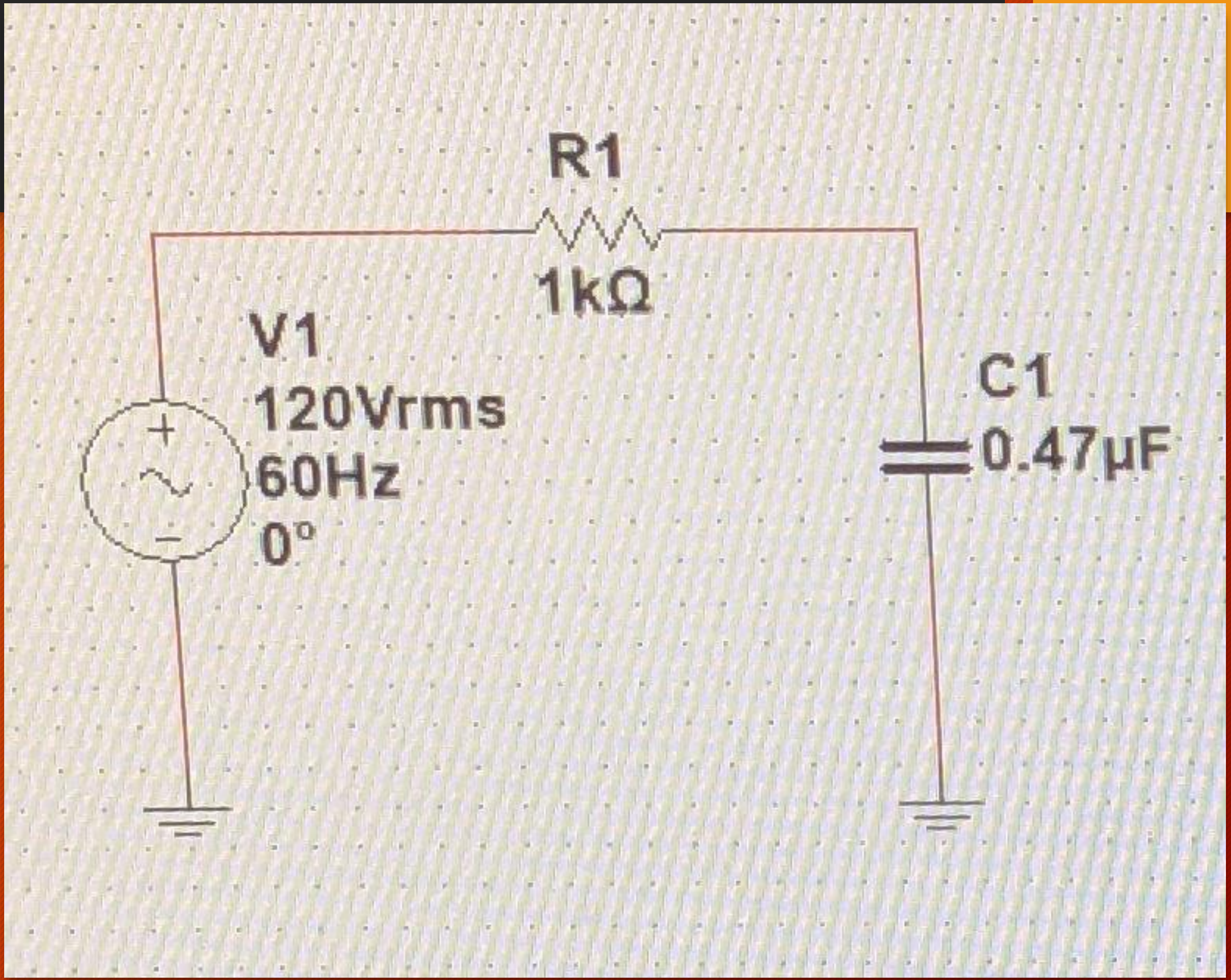
Instructions lab 11 page 2

Measure and record the resistor value using the DMM and measure and record the capacitor values using the LCR meter in Table 1. Connect the resistor and capacitor as shown in Figure 1. Connect the Function Generator to the input at V1 and connect Channel 1 of the Oscilloscope to the input and Channel 2 to the output. Adjust the voltage of the Function Generator to 1Vpp at the frequencies shown in Table 2. Measure the input and output voltages using the Oscilloscope. Record the results in Table 2.

Change the capacitor and retest.

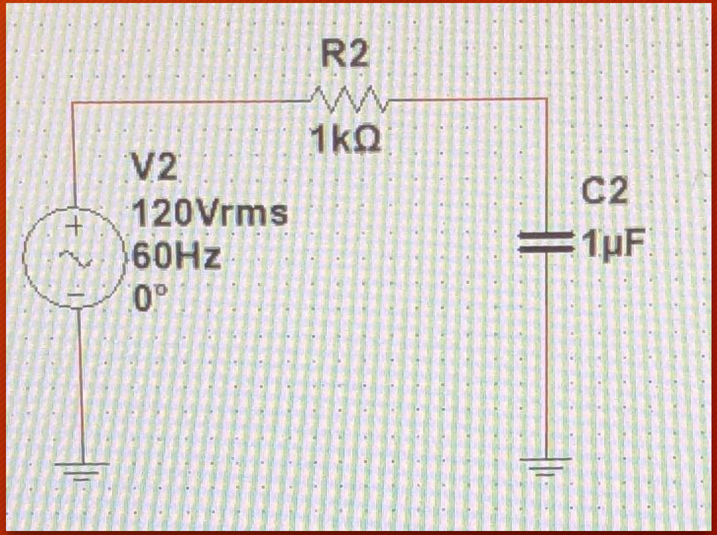
Lab 11 page 3

- This picture is of our circuit with a 1kΩ resistor, 0.47uF capacitor and an AC Voltage Power Supply



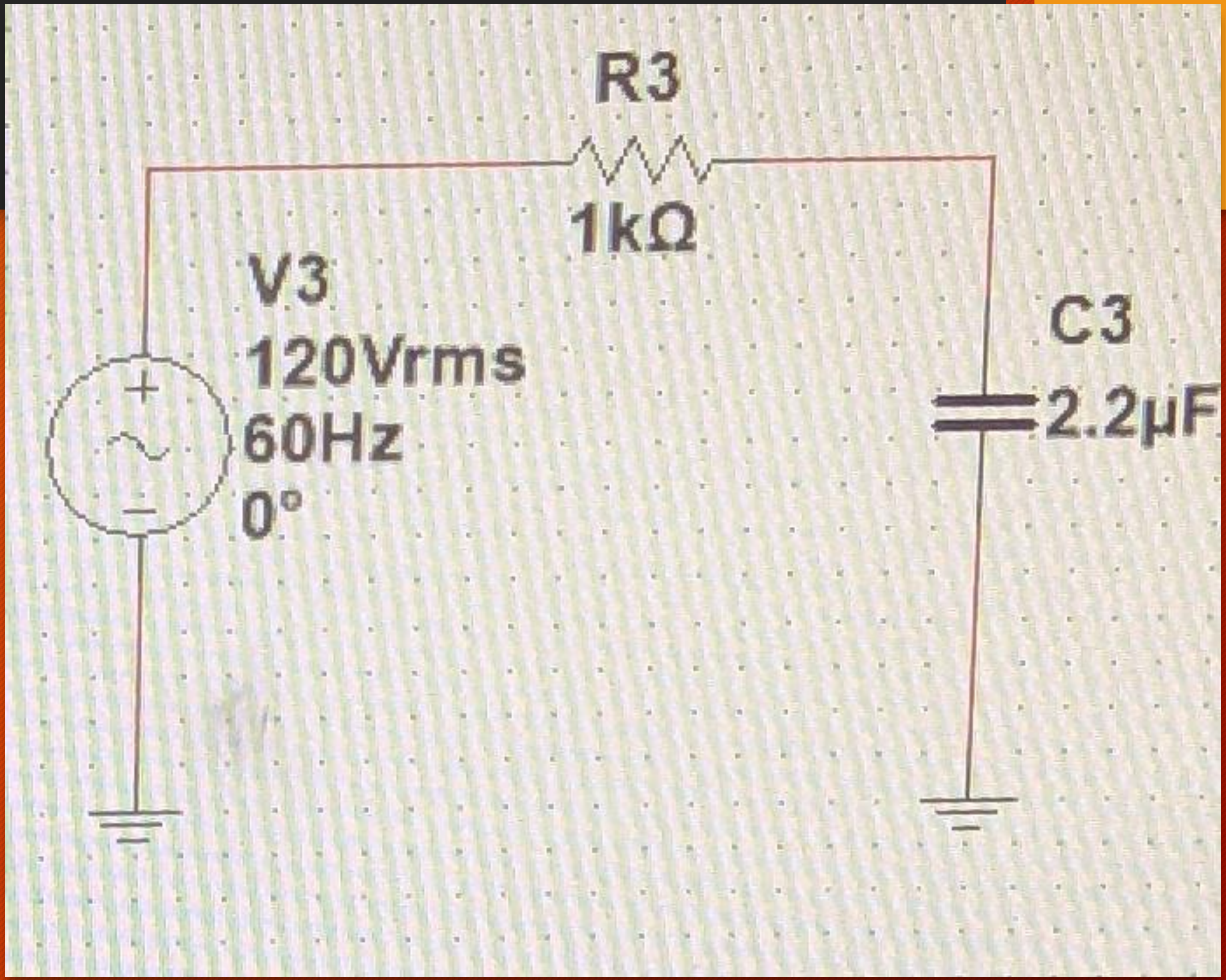
Lab 11 page 4

- This picture is of our circuit with a 1kΩ resistor, 1uF capacitor and an AC Voltage Power Supply



Lab 11 page 5

- This picture is of our circuit with a 1kΩ resistor, 2.2uF capacitor and an AC Voltage Power Supply



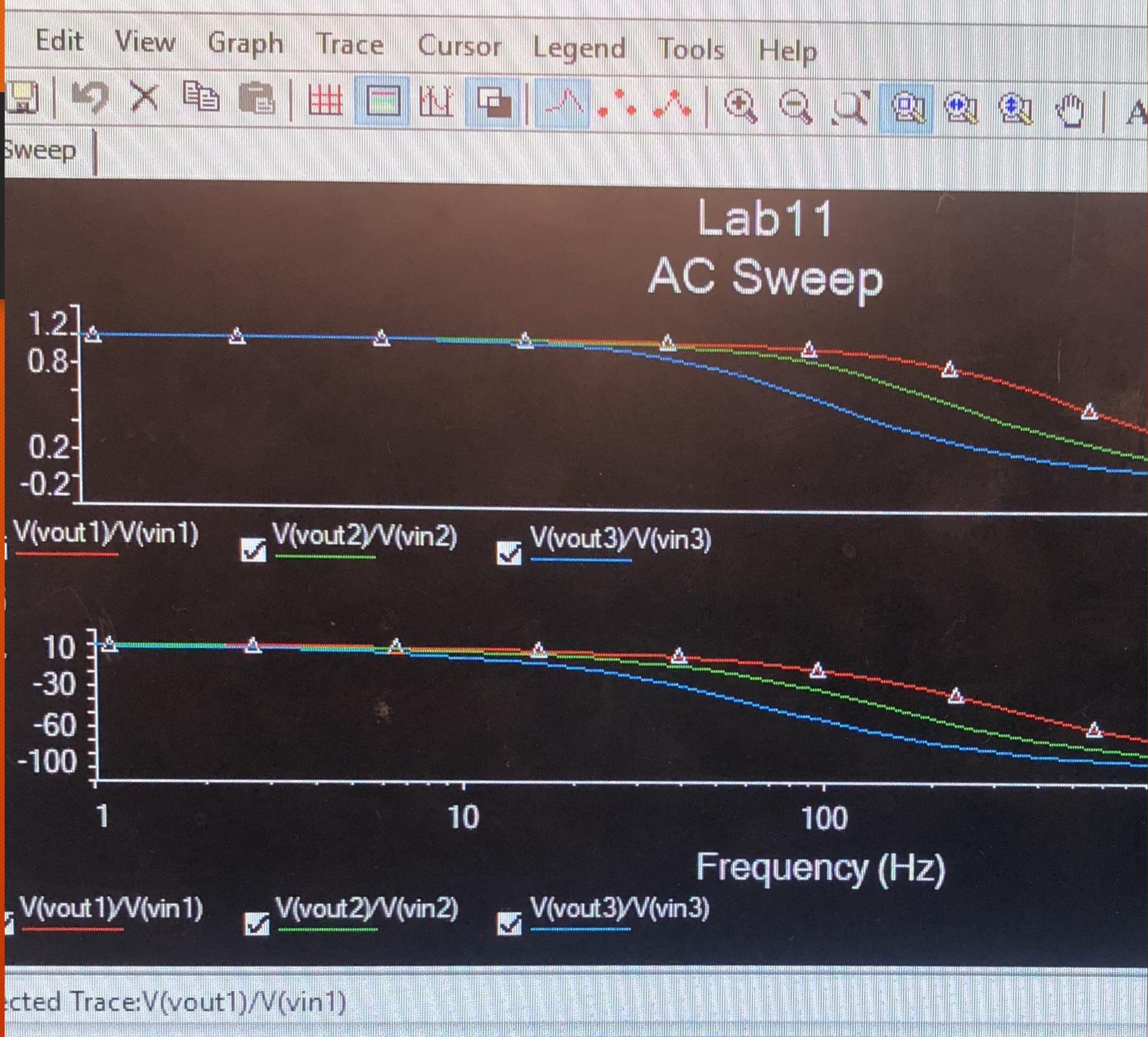
Lab 11 page 6

This picture is of our Expected and Measured results for our Capacitance or Resistance

	Capacitance or Resistance	
	Expected	Measured
C1 =	0.47uf	.461uF
C2 =	1uf	.913uF
C3 =	2.2uf	2.1uF
R1 =	1kuf	1.005k

Lab 11 page 7

This picture is of our AC Sweep



Lab 11 page 8

This picture is of our Expected and Measured Input and Output Voltages

	Output Voltage C = .47uF			Output Voltage C = 1uF			Output Voltage C = 2.2		
	Expected	Measured		Expected	Measured		Expected	Measured	
Frequency	Output Voltage	Input Voltage	Output Voltage	Output Voltage	Input Voltage	Output Voltage	Output Voltage	Input Voltage	Output Voltage
10		1	1		1	1		1	1
50		1	1		1	.937		1	.818
100		1	.98		1	.838		1	.600
200		1	.88		1	.619		1	.378
300		1	.76		1	.478		1	.260
400		1	.657		1	.399		1	.218
500		1	.578		1	.337		1	.180
600		1	.515		1	.296		1	.157
700		1	.460		1	.255		1	.159
800		1	.417		1	.240		1	.140
900		1	.378		1	.218		1	.138
1,000		1	.357		1	.197		1	.139
2,000		1	.199		1	.139		1	.120
3,000		1	.156		1	.100		1	.055
4,000		1	.102		1	.055		1	.047
5,000		1	.085		1	.048		1	.046
6,000		1	.078		1	.039		1	.040
7,000		1	.070		1	.030		1	.030
8,000		1	.061		1	.031		1	.031
9,000		1	.063		1	.032		1	.031
10,000		1	.054		1	.031		1	.032

Observations- We observed that the larger the capacitors, the lesser the output voltages will be.

Lab 11 Page 9

Lab 12- Series/Parallel inductors

- The purpose of this lab was to experiment with series circuits and parallel combinations of capacitors.
- Equipment needed- LCR Meter, Elvis II, 3 capacitors
- Bench 1

Instructions
lab 12 page 2

- Measure and record the inductance of each inductor using the LCR meter. Connect the inductors as shown in Figure 1 and measure and record the total inductance, LT. Then connect the inductors as shown in Figure 2 and measure and record the total inductance, LT.

Lab 12 page 3

This is a picture of our series inductance circuit

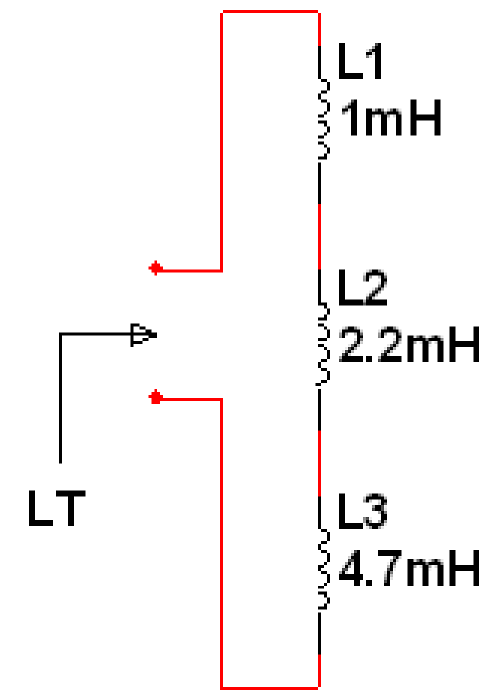


Figure 1

Series Circuit

	Expected	Simulated	Measured
L1 =	1m	1m	.98m
L2 =	2.2m	2.2m	2.17m
L3 =	4.7m	4.7m	4.3m
LT =	7.9m	7.9m	7.44m

Lab 12 page 4

This is a picture of our series inductance circuit results

Lab 12 page 5

This is a picture of our Parallel inductance circuit

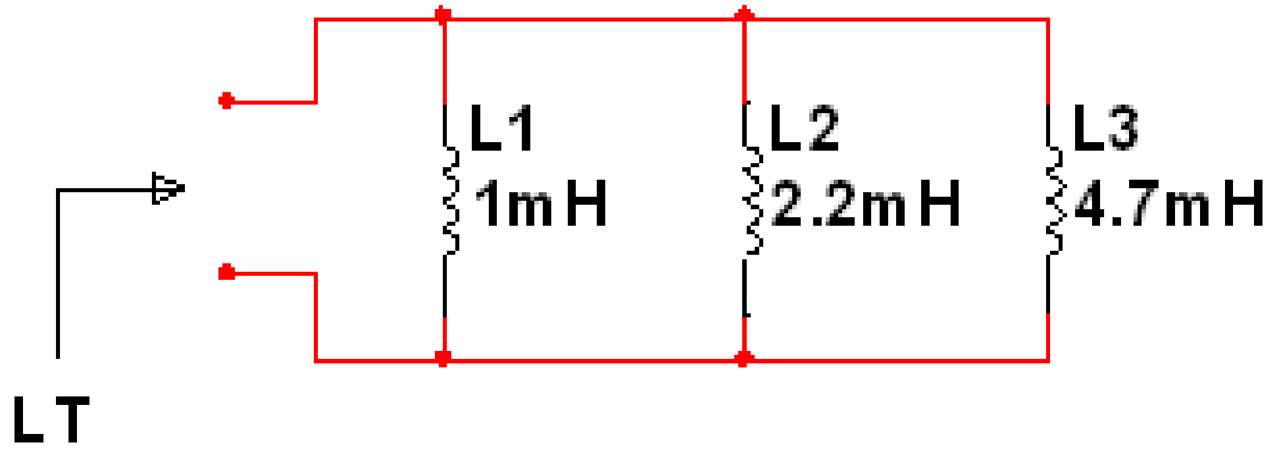


Figure 2

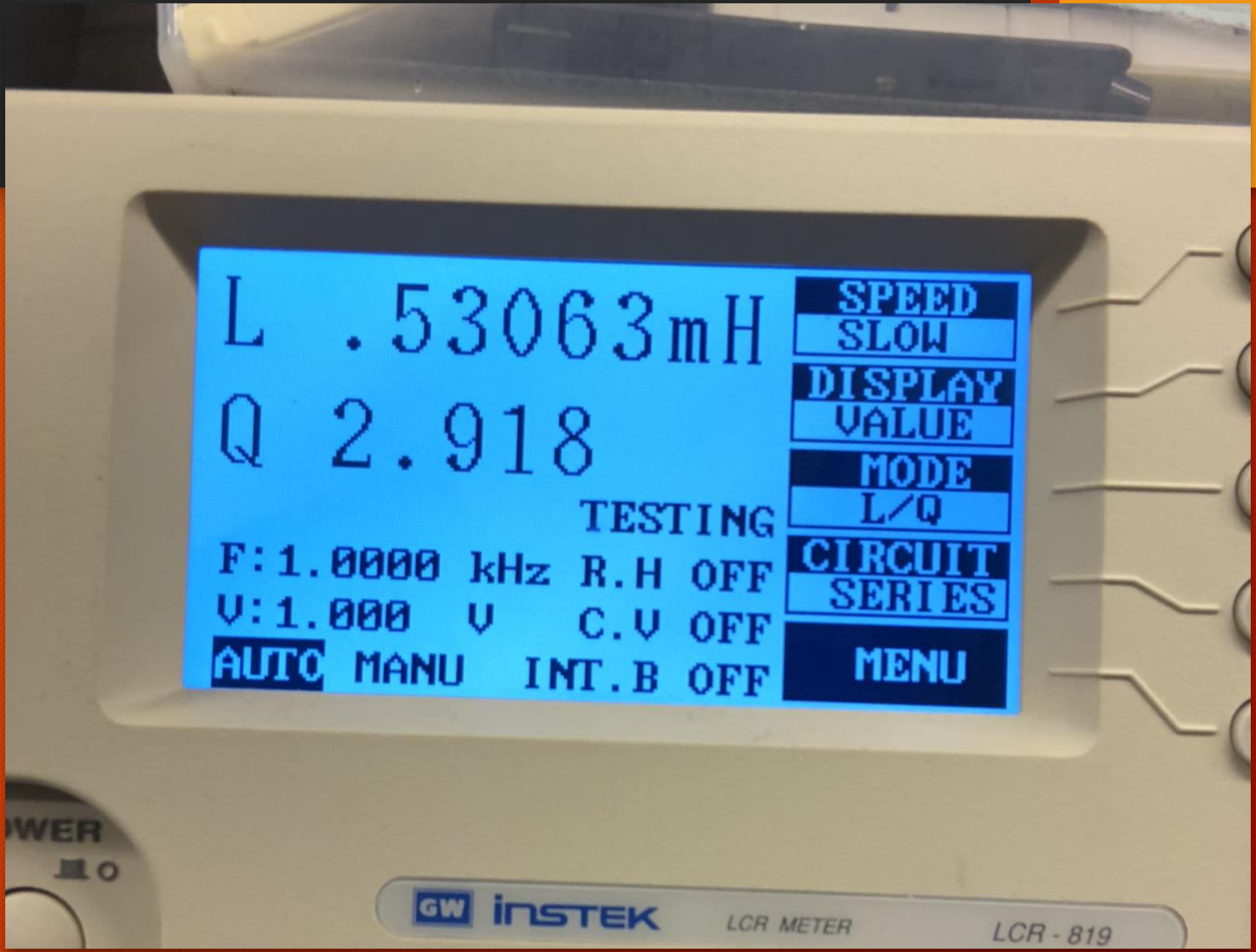
Parallel Circuit

Lab 12 page 6

This is a picture of our parallel inductance circuit results

	Expected	Simulated	Measured
L1 =	1m	1m	.98m
L2 =	2.2m	2.2m	2.17m
L3 =	4.7m	4.7m	4.3m
LT =	600u	600u	531m

Lab 12 page 7



This is a picture of our Measured LT from our Parallel circuit

Lab 12 page 8

This is a picture of how Measured our inductance

- Observations- Inductors in series and parallel are related to resistors in series and parallel. You can find your total inductance the same way you can calculate your total resistance.

Lab 12 Page 9

Lab 13- Series/Parallel inductors

- The purpose of this lab was to experiment with RL (Resistor & Inductor) circuits.
- Equipment needed- Digital Multimeter, LCR Meter, Oscilloscope, Function Generator, Elvis II, inductors, resistor, 100 ohm
- Bench 1

Instructions lab 13 page 2

- Measure and record the resistor value using the DMM and measure and record the inductor values using the LCR meter in Table 1. Connect the resistor and inductor as shown in Figure 1. Connect the Function Generator to the input at V1 and connect Channel 1 of the Oscilloscope to the input and Channel 2 to the output. Adjust the voltage of the Function Generator to 1Vpp at the frequencies shown in Table 2. Measure the input and output voltages using the Oscilloscope. Record the results in Table 2.
- Change the inductor and retest.

Lab 13 page 8

This is a picture of our 3 inductors

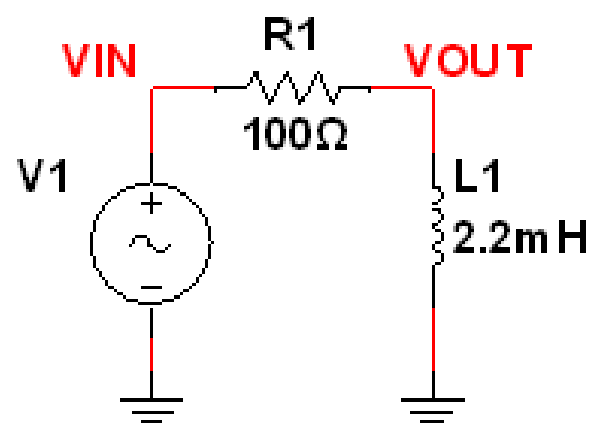


Figure 1

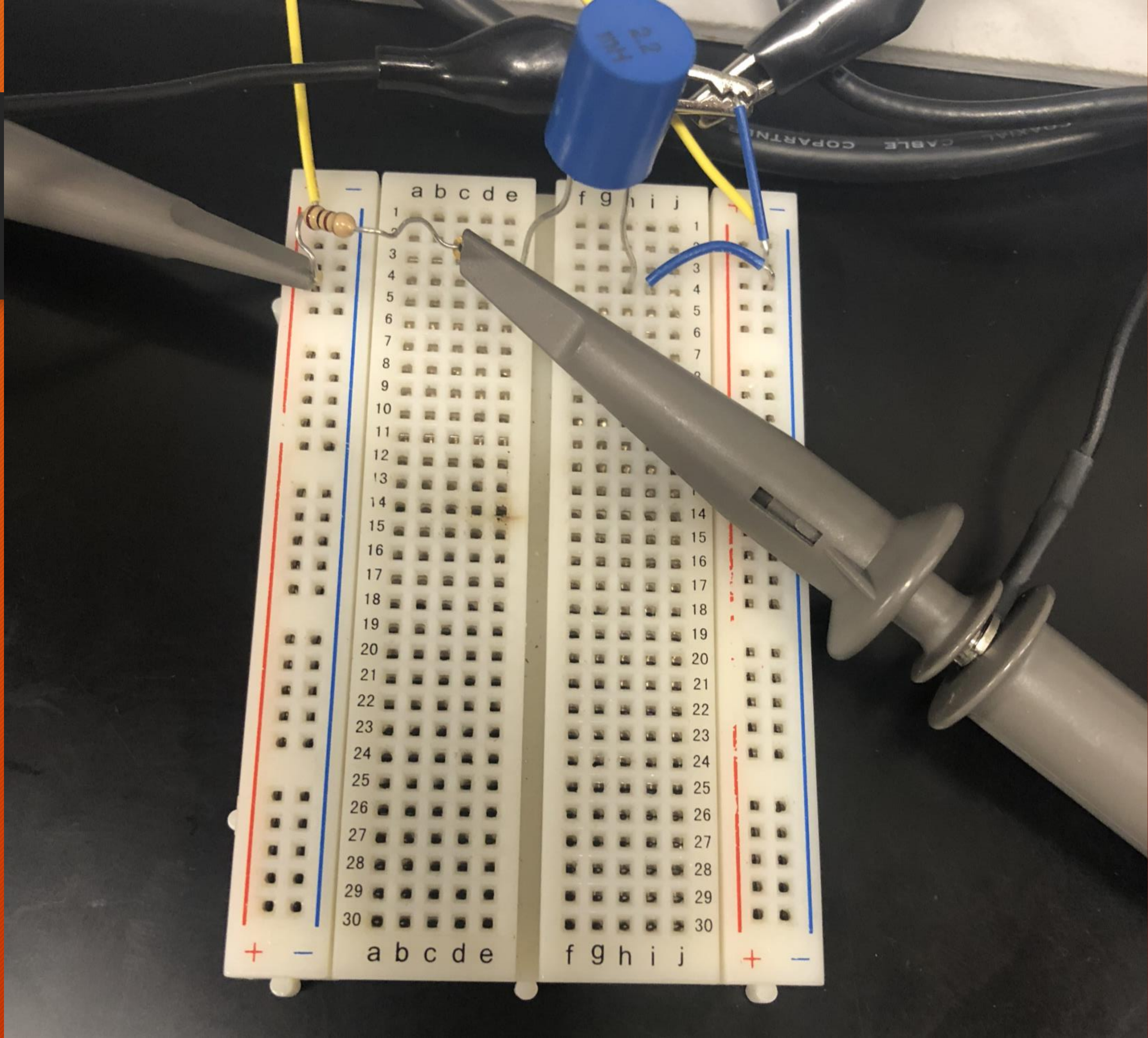
RL Circuit

Lab 13 page 3

This is a picture of our 3 inductors

Lab 13 page 4

This is a picture of our 3 inductors



Lab 13 page 5

This is a picture of our L1, L2, L3, and R1 expected and measured Results

	Inductance or Resistance	
	Expected	Measured
L1 =	1mH	1.206
L2 =	2.2mH	2.193
L3 =	4.7mH	4.342
R1 =	100ohm	98.06

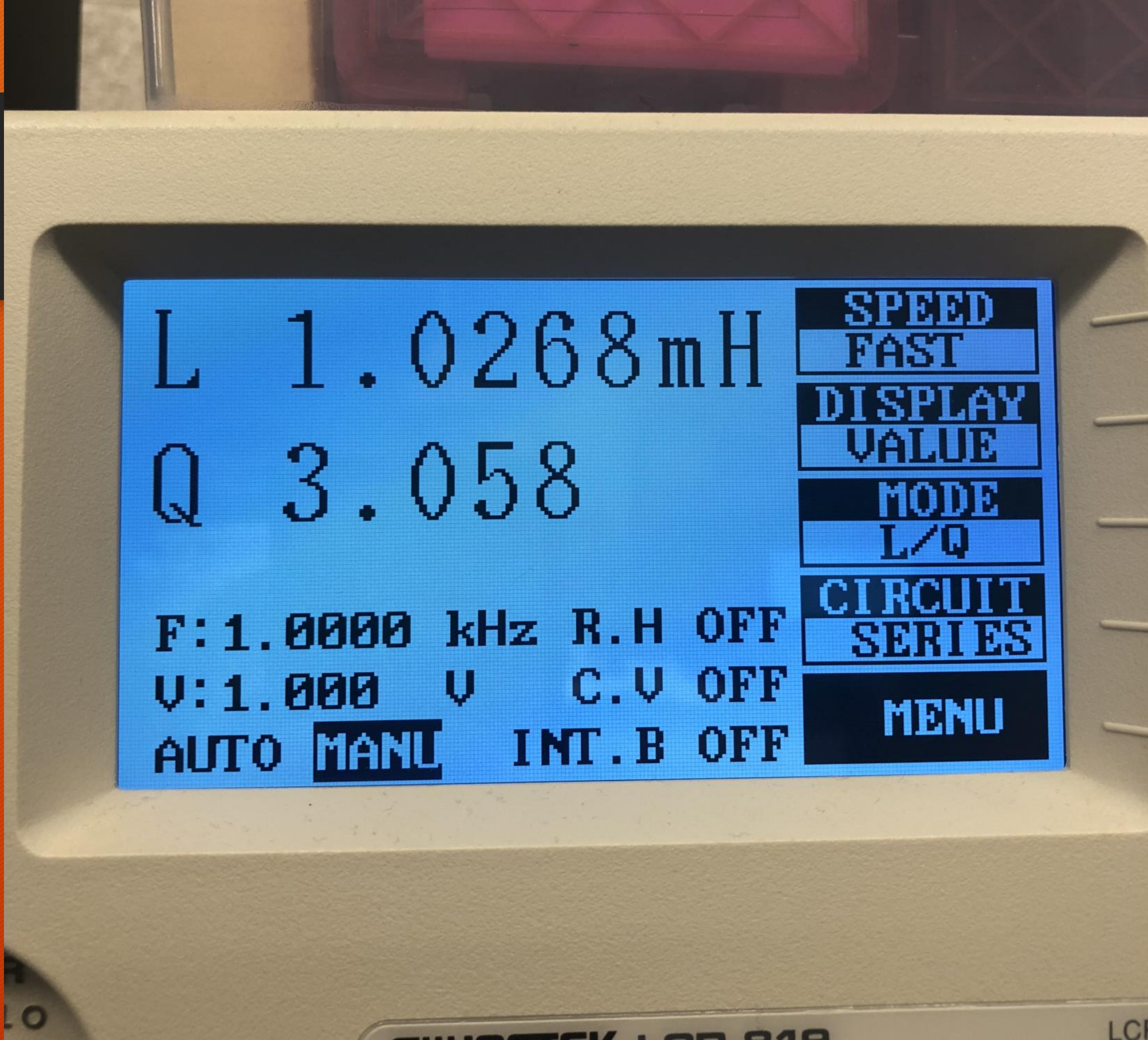
Lab 13 page 6

	Output Voltage L = 1mH			Output Voltage L = 2.2mH			Output Voltage L = 4.7mH		
	Expected	Measured		Expected	Measured		Expected	Measured	
Frequency	Output Voltage	Input Voltage	Output Voltage	Output Voltage	Input Voltage	Output Voltage	Output Voltage	Input Voltage	Output Voltage
10	.628 mV	1.44v	34mV	1.38 mV	1.15	63 mV	2.95 mV	1.16	112mV
50	3.15 mV	1.44v	36mV	6.91 mV	1.44	63 mV	14.8 mV	1.44	114 mV
100	6.28 mV	1.44v	38mV	13.8 mV	1.44	64 mV	29.5 mV	1.46	116 mV
200	12.8 mV	1.44v	44 mV	27.6 mV	1.44	72 mV	58.97 mV	1.46	130 mV
300	18.97mV	1.44v	48 mV	41.4 mV	1.44	82 mV	88.2 mV	1.48	154 mV
400	25.2 mV	1.44v	54 mV	55.2 mV	1.50	96 mV	117 mV	1.48	184 mV
500	31.6 mV	1.44v	60 mV	68.96 mV	1.50	116 mV	146 mV	1.52	212 mV
600	37.8 mV	1.44v	6 mV	82.6 mV	1.48	130 mV	174 mV	1.50	244 mV
700	43.9 mV	1.44v	74mV	96.3 mV	1.48	144 mV	202 mV	1.52	280 mV
800	50.2 mV	1.44v	84mV	109.9 mV	1.50	160 mV	230 mV	1.52	300 mV
900	56.5 mV	1.44v	90mV	123 mV	1.50	178 mV	257 mV	1.54	336 mV
1,000	62.7 mV	1.44v	98mV	137 mV	1.50	200 mV	283 mV	1.54	362 mV
2,000	124.7 mV	1.48v	176mV	267 mV	1.52	372 mV	509 mV	1.6	702 mV
3,000	185.3 mV	1.48v	264mV	383 mV	1.52	534mV	663 mV	1.7	980 mV
4,000	243.8 mV	1.48v	326mV	484 mV	1.54	692mV	763 mV	1.82	1.20V
5,000	299.7 mV	1.48	460mV	569 mV	1.58	920mV	828 mV	1.9	1.34V
6,000	352.8 mV	1.52v	540mV	638 mV	1.64	1.02V	871 mV	1.92	1.64V
7,000	402.6 mV	1.52v	600mV	695 mV	1.70	1.12V	900 mV	1.98	1.68V
8,000	449.1 mV	1.52v	680mV	742 mV	1.74	1.26V	921 mV	2.0	1.8V
9,000	492.2 mV	1.55v	740 mV	779 mV	1.80	1.30V	936 mV	2.02	1.84V
10,000	532.4 mV	1.59v	800mV	810 mV	1.84	1.44V	947 mV	2.08	1.92 V

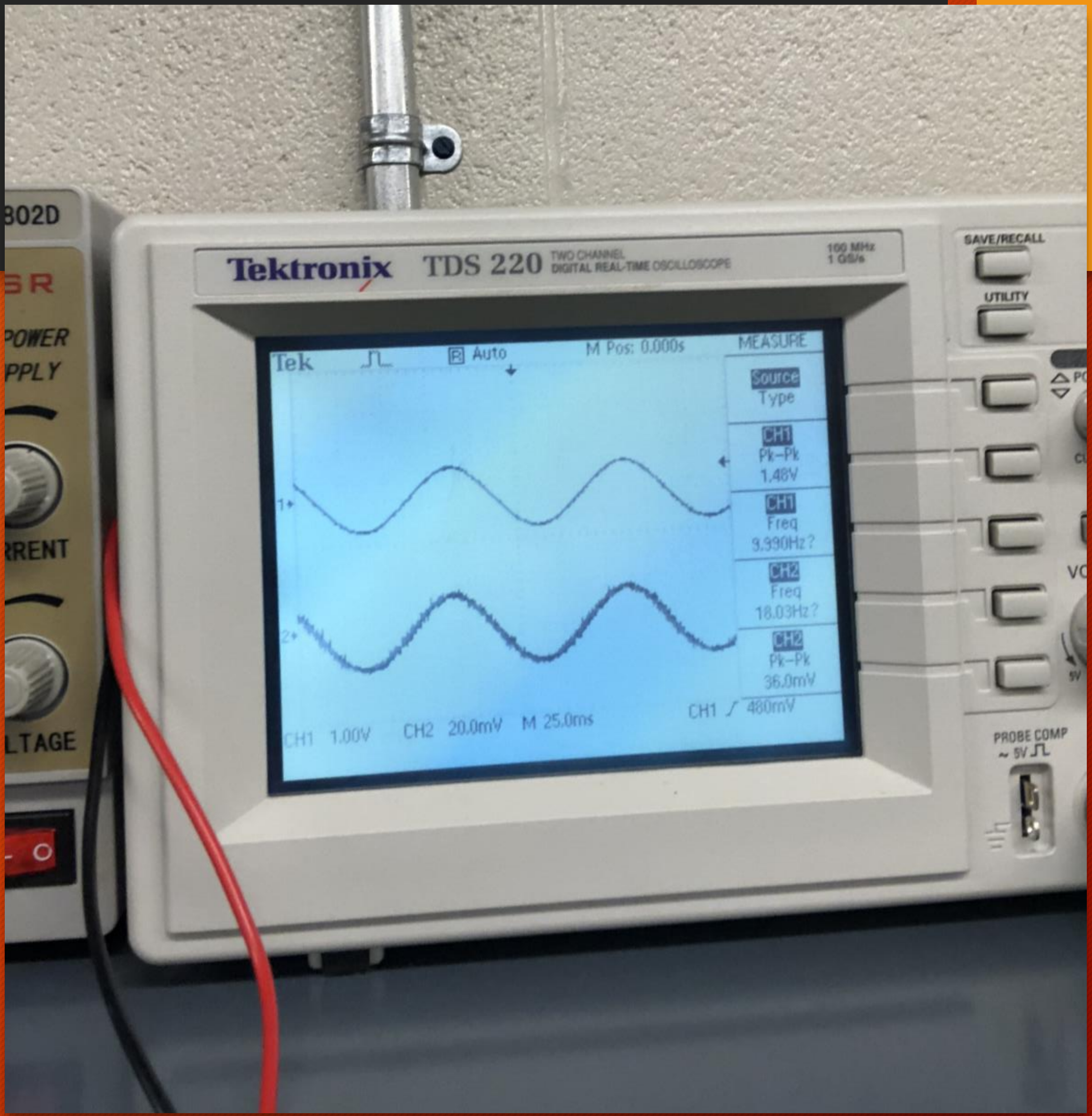
This is a picture of our expected and measured input and output voltages

Lab 13 page 7

This is a picture of our measured L1



Lab 13 page 8



This is a picture of one of our measurements

- Observations- The larger the inductor, the higher the output voltage will be and the resistance stayed consistent throughout the process.

Lab 13 Page 10