

Lab 1 - Electronics

Lab ☐ 12:30 W ☐ 2:00 W ☐ 3:30 W
 Section ☐ 11:00 F ☐ 12:30 F

Record your answers to the questions asked in the lab assignment by annotating this PDF file. The completed PDF file must be uploaded to Gradescope by the Lab 1 due date.

1. (3 points) What are the values of the resistors? List the values from smallest to largest.

a. From the color bands? R_1 : _____ R_2 : _____ R_3 : _____

b. The measured values? R_1 : _____ R_2 : _____ R_3 : _____

2. (2 points) In the circuit with $V_S = 3V$ and resistors R_1 and R_2 in series, what are the **calculated** voltages across them?

$V_1 =$ _____ $V_2 =$ _____

3. (2 points) In the circuit with $V_S = 3V$ and resistors R_1 and R_2 in series what are the **measured** voltages across them?

$V_1 =$ _____ $V_2 =$ _____

4. (2 points) Using the values you just measured for the voltages across R_1 and R_2 , and the values you measured previously for those resistor values, use Ohm's Law to calculate the current that was passing through the resistors in both cases.

	Voltage	Resistance	Current
R_1 :	_____	_____	_____
R_2 :	_____	_____	_____

5. (2 points) What was the value that you measured with the DMM in **current mode** for the current flowing through the R_1 and R_2 ?

$I =$ _____

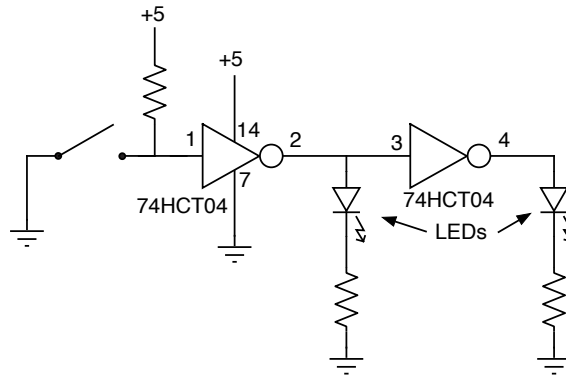
6. (3 points) What were the voltages across the LED and the resistor and how much current was flowing through them?

$V_{LED} =$ _____ $V_1 =$ _____

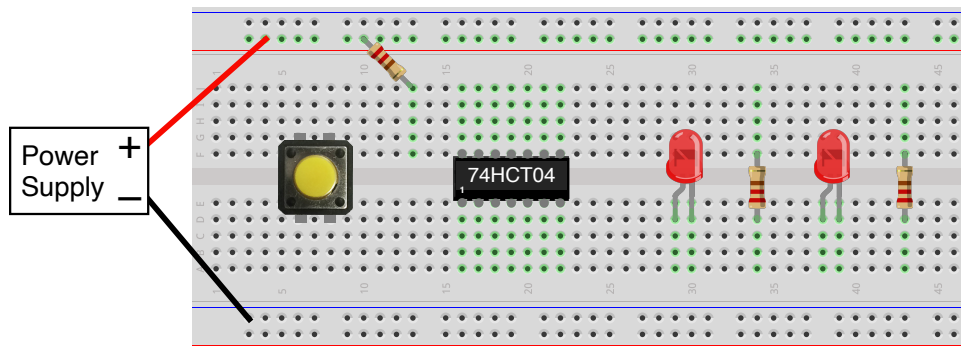
$I =$ _____

Review Problems

- (3 points) Below is a schematic diagram for a circuit you have been asked to build on a breadboard. It uses a button, 74HCT04 inverter IC, a couple LEDs and some resistors.



On the picture below of the breadboard, draw in the wiring connections that need to be made to build this circuit. **Note** Since it's hard to tell from the picture below which lead of the LED is for positive or negative you can hook it up either way.



- (3 points) The circuit below has been built with a button, inverter and LED. Show what connections need to be made in order to make a current measurement with the DMM of the current passing through the LED.

