Experiment 7 – Lab Report

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Objective:

The objectives of Experiment seven are to learn how to use the protoboard properly, how to construct basic circuits, and to learn how to use the ohmmeter to determine if the circuit is correct. The purpose of the lab is to build a protoboard using various resistors and jumper wire. \

Procedure/Data:

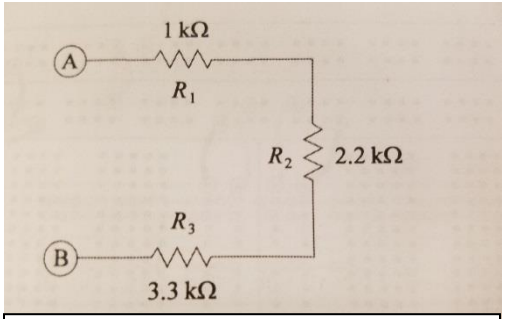
To begin the lab, we stripped small pieces of solid wire and connected them to points 1 and 2, as shown in figure 1. We then tested the connection between the two points and determined that there was no connection between the two points because of a break in the board. We then used the ohmmeter to test a connection between pins 3 and 4, and determined that there was a connection because it read 0 ohms.

There is also a connection between points 3 and 5, and point 3 is also connected to points 6 and 7. Points 3-7 are connected on the protoboard as shown in figure 1, but point 8 is not connected because the ohmmeter showed that it was an open connection. Points 8 through 12 are connected to each other, but 13 and 14 are not.

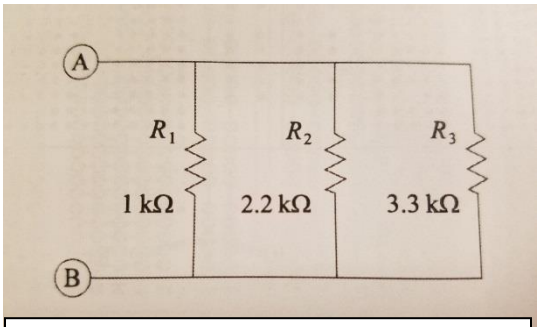
Next, we connected a 1kΩ resistor across points 3 and 7, shown in figure 1, and got a value of 0Ω using the ohmmeter. We then connected the 1kΩ resistor to points 3 and 11, and got a reading of .989kΩ.

On the protoboard, we connected the resistors together as shown in schematic 1. The indicated value of between points A and B is 6.45kΩ. Next, we connected the circuit as shown on schematic 2. The reading from the ohmmeter between points A and B read 758Ω. We then created a circuit according to schematic 3, and got a reading of 2.3kΩ from the ohmmeter.

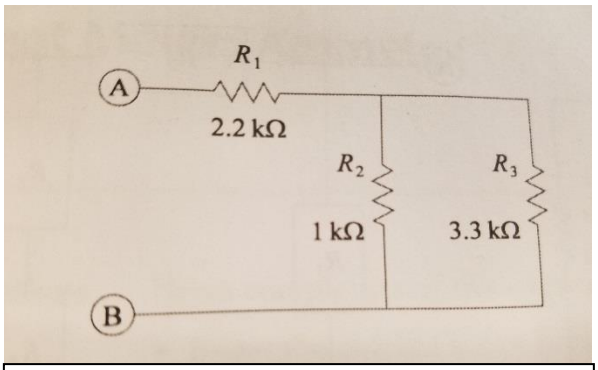
Next, we created a circuit on the protoboard according to schematic 4, and we got a value of 9.12kΩ from points A to B. The final circuit we created was arranged based on schematic 5, and we got an ohmmeter reading of 3.6kΩ



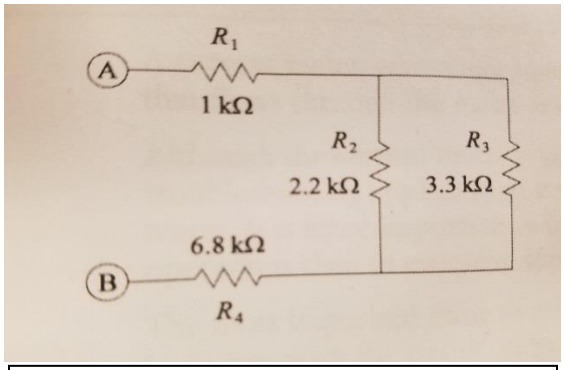
Schematic 1



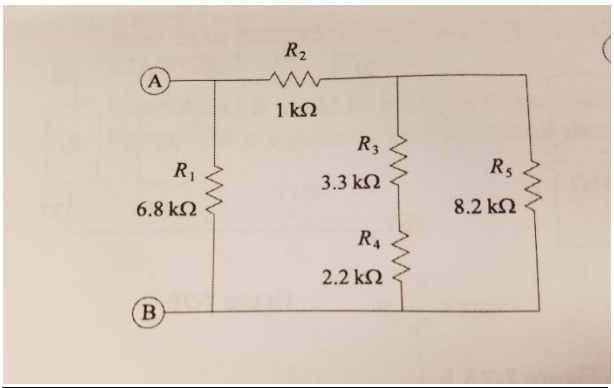
Schematic 2



Schematic 3



Schematic 4



Schematic 5

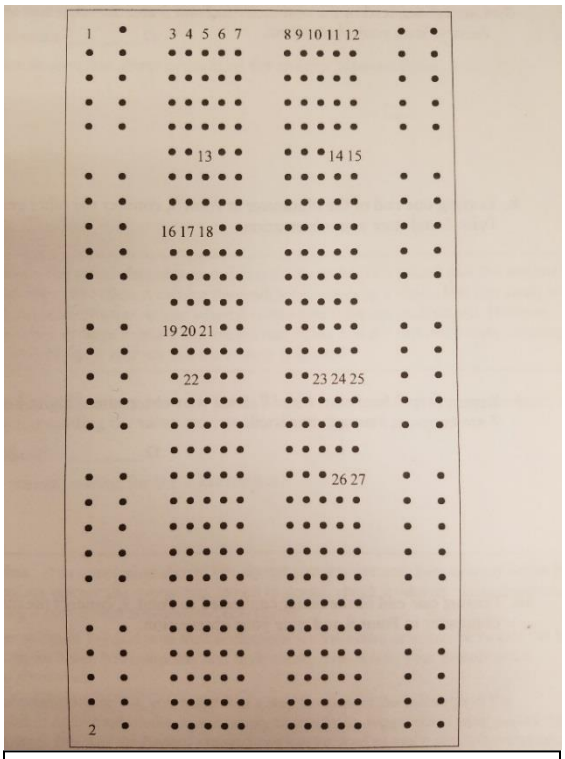


Figure 1: Breadboard Schematic

Discussion: During this experiment we were able to finish the entire experiment within the allotted amount of time with no problems that were not able to be fixed. The only problems we had were getting stuck on which pins to put the wires although this was solved with re reading the chapter and asking the juniors for assistance

Conclusion: During the experiment it was proved that you can't connect resistors between points on the board that are electrically connected. On the protoboard, connections that were horizontal without a break are connected, such as points 3-7. Points going directly vertical without a break are also connected. A series circuit is a closed circuit in which the current follows a single path. A parallel circuit is a circuit that is divided into two or more paths.