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Lab 1

This lab was used to apply our knowledge of circuit analysis through voltage and current dividers and verifying these answers with the measurement tools. Within this lab we found the voltage and current measured across resistance elements, with the corresponding instrument (Voltmeter/Ammeter). We also used a voltage divider and current divider to understand the elements and did these calculations prior to using the correct lab instruments, the instruments proved our hypothesis.

This is the data used with in the lab:



We were able to verify Kirchhoff’s laws through calculation and experimental testing. Both the current was split amongst loops and the voltage across the nodes was kept at the same potential when elements were kept in parallel. Our calculation values were measured to be almost identical to our instruments measurments.

The oscilloscopes did meet the advertised specification but there was an error in the measurements by about one-one hundredth of the advertised value.

The voltage was also precise but fluctuated from time due to maybe some noise interference but the value was consistent with what we were measuring and how much we allowed to be outputted by the device.

Percentage error for each resistor is given in the table, some of the resistor (due to time/experiments/misuse) had had percentage of error but most of the resistors were in good condition and were very close (fraction of a percent) to being the color coded value.

The X10 probe gives the most resistance therefore drawing less current through it when a circuit is operating, this will allow us to more accurately measure current through a designated circuit element when put into parallel with a circuit element(resistor in this case). Also if the probe is put in parallel with another element the potential drop happens across both elements and is equivalent to each other so therefore the voltage is not affected when wired in parallel.