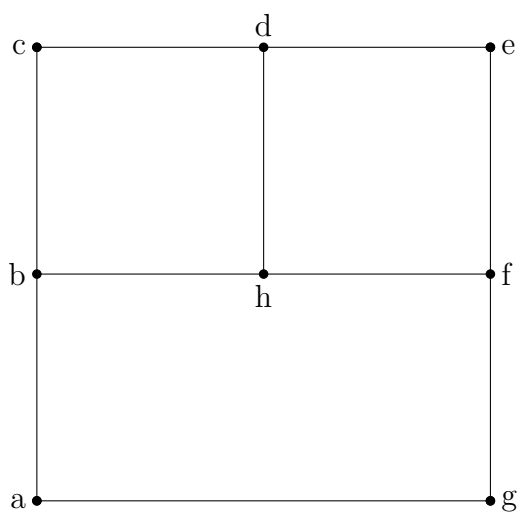


Figure 1: A circuit that has 3 loops and 2 junctions.

*Figure 2*

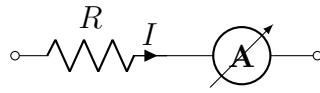


Figure 3: An ammeter is placed in series with a resistor to measure the current through the resistor.

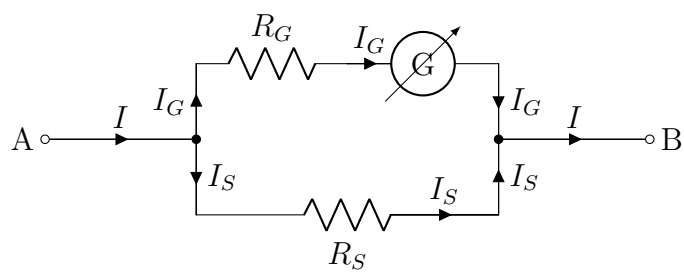


Figure 4: Constructing an ammeter from a galvanometer by placing a shunt resistor.

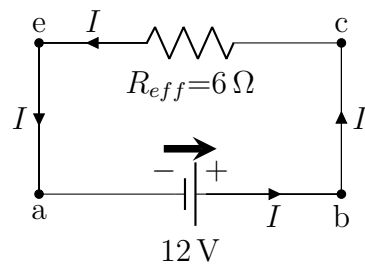


Figure 5: The resistors from the circuit in Figure ?? have been combined in series to simplify the circuit.

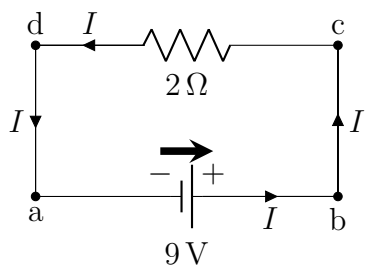


Figure 6: A simple circuit, showing a 9 V battery and a 2Ω resistor. For ease in analyzing circuits, we suggest drawing a “battery arrow” above batteries that goes from the negative to the positive terminal.

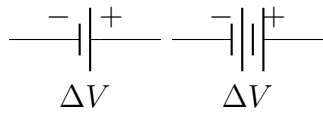


Figure 7: Circuit diagram symbols that can be used for a battery.

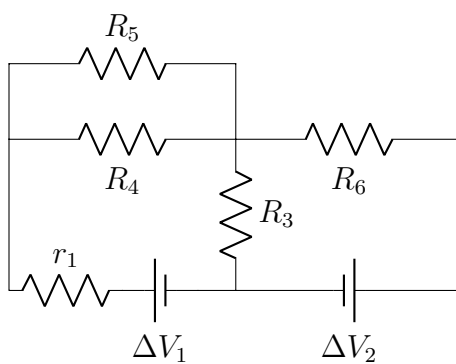


Figure 8: The resistors r_2 , R_1 and R_2 in series from the circuit in Figure ?? have been combined into the effective resistor, R_6 , to simplify the circuit.

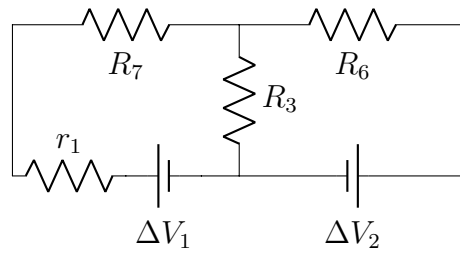


Figure 9: The resistors R_4 and R_5 in parallel from the circuit in Figure ?? have been combined into the effective resistor, R_7 , to simplify the circuit.

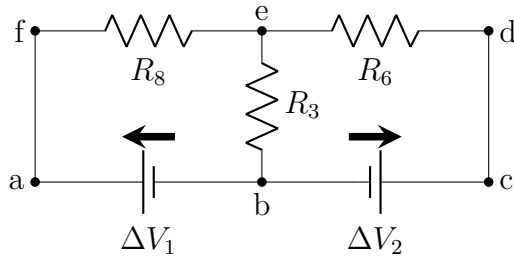


Figure 10: The resistors r_1 and R_7 in series from the circuit in Figure ?? have been combined into the effective resistor, R_8 , to simplify the circuit.

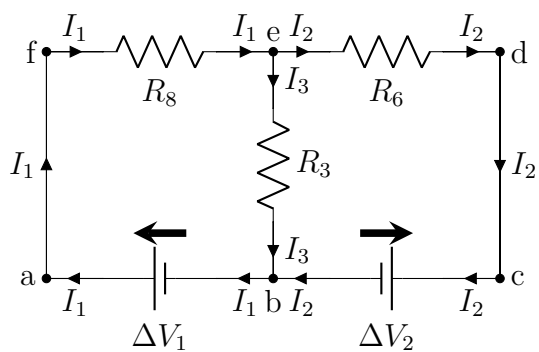


Figure 11: Final and labelled circuit diagram that is simplified from the one in Figure ??.

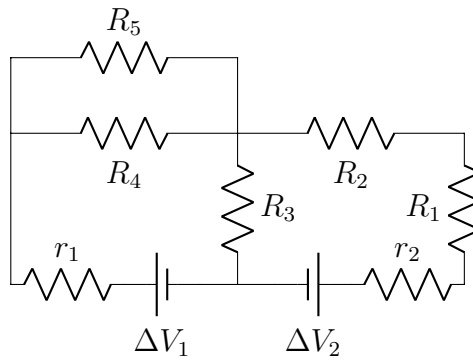


Figure 12: A circuit that can be simplified and then solved with Kirchhoff's rules

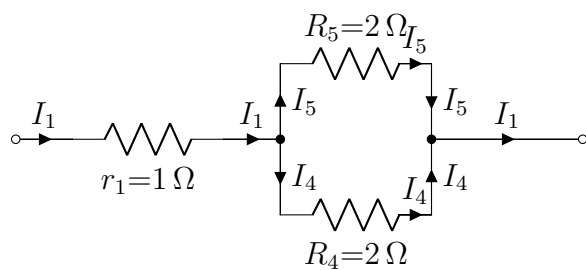


Figure 13: The components of the effective R_8 resistor from Figure ???. The current, I_1 , coming from the battery goes through r_1 and then splits up.

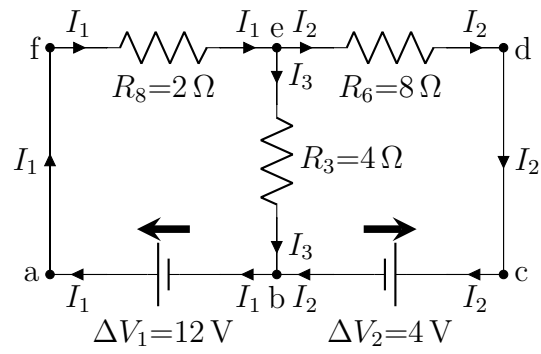


Figure 14: Simplified version of the circuit in Figure ??.

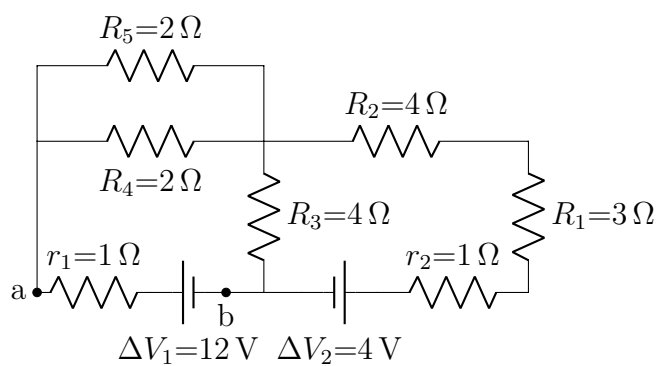


Figure 15: The same circuit as in Figure ??, with values filled in.

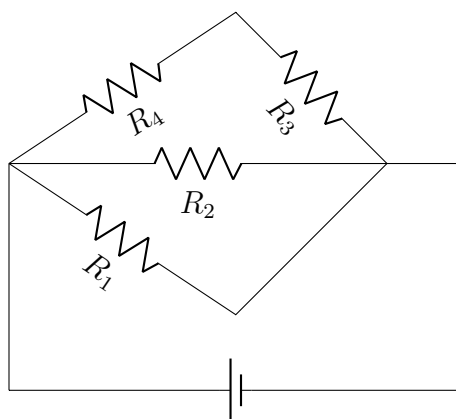


Figure 16: A weird looking circuit.

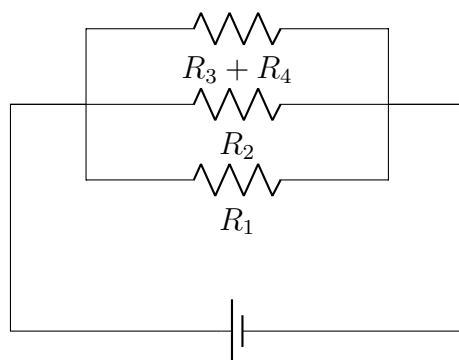


Figure 17: A much less weird looking circuit.

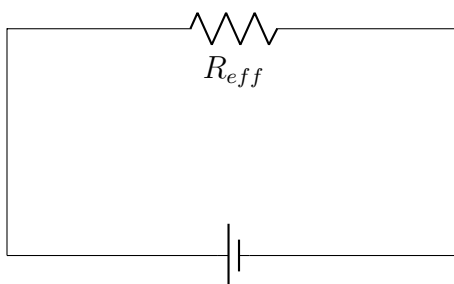


Figure 18: A simple circuit.

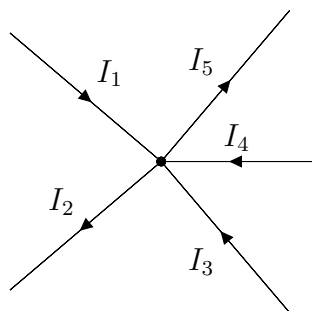


Figure 19: A junction with 5 segments and 5 currents.

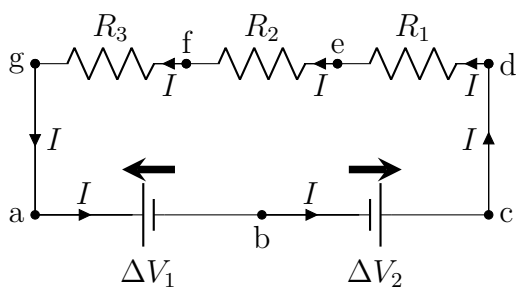


Figure 20: A loop with 2 batteries and 3 resistors.

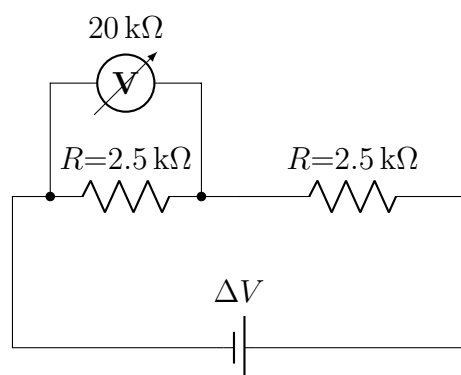


Figure 21: A circuit with a battery of unknown voltage

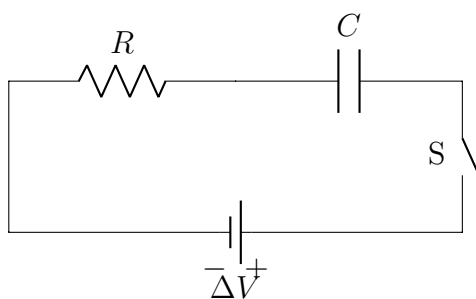


Figure 22: A simple circuit with a resistor, battery, and capacitor.

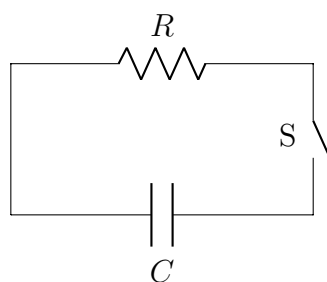


Figure 23: A simple circuit with a resistor and a capacitor.

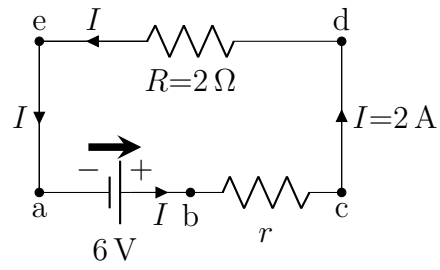


Figure 24: A circuit showing a real battery (with internal resistance r) in series with a resistor.

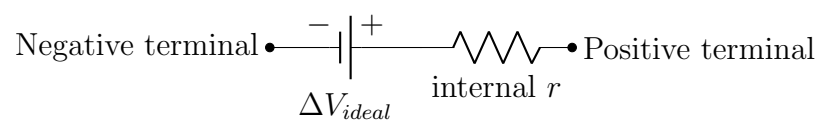


Figure 25: Circuit diagram symbol for a battery.

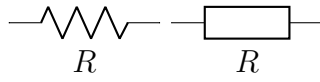


Figure 26: Circuit diagram symbols for a resistor, using the North American convention (left), and the European convention (right).

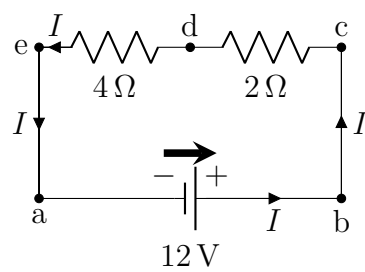


Figure 27: Two resistors connected in series with a battery

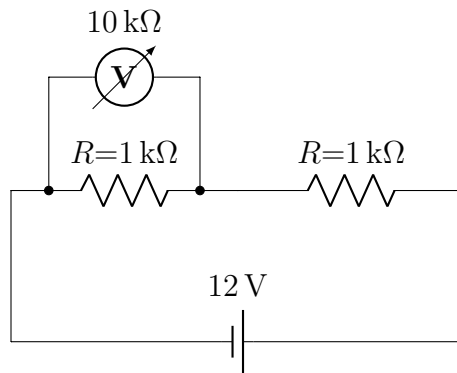


Figure 28: When using a voltmeter, the circuit is modified.

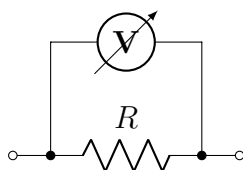


Figure 29: A voltmeter is placed in parallel with a resistor to measure the voltage across the resistor.



Figure 30: Constructing an voltmeter from a galvanometer by placing a resistor in series with the galvanometer.