



Physics

PHY3T/P12/task

Unit 3 Investigative and Practical Skills in AS Physics ISA (P) Resistors in Parallel

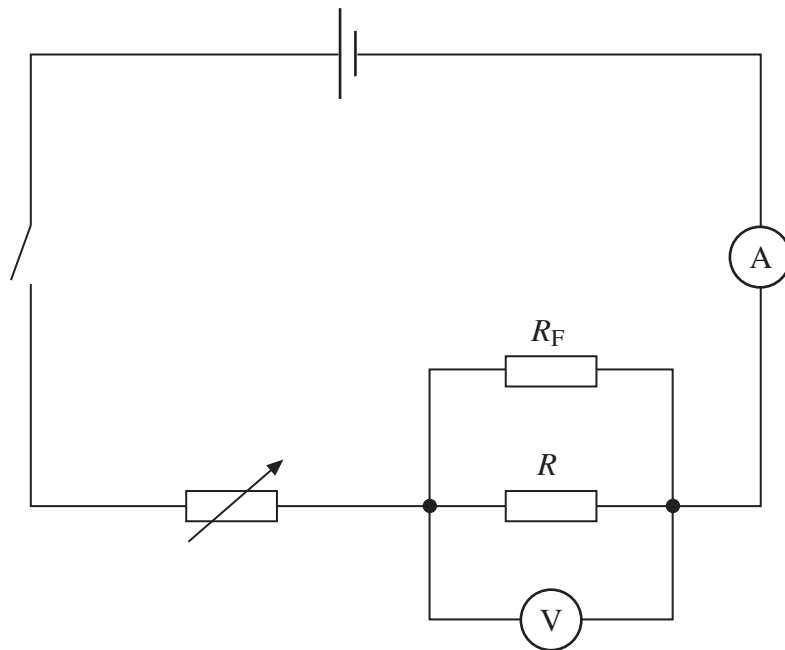
Stage 1: Task Sheet

This task is worth 9 marks

You are advised to read through these instructions before beginning your work.

You are going to investigate how the current varies through a combination of two resistors in parallel when one of the resistors is varied, and a constant potential difference (pd) is maintained across them.

- Set up the circuit as shown in **Figure 1**, using the resistor with the largest value labelled R .
- Before switching on ask the supervisor to check your circuit.
- Switch on the circuit and adjust the variable resistor and/or the dc supply so that the pd across the parallel resistors is as close as possible to 1.00 V.
- Read and record the reading on the voltmeter, the corresponding reading of current, I , shown on the ammeter, and the resistance, R , of the resistor used.
- Remove resistor R , and replace it with a different value. Re-adjust the pd across the parallel arrangement to 1.00 V and read the corresponding current value, I .
- Repeat this procedure for the other resistors, R , by connecting each resistor into the circuit and adjusting the pd to 1.00 V.
- Repeat your readings and calculate the mean current, I_{mean} , for each resistor value.
- Record your results in a table, including a column for values of $1/R$.
- Plot a graph of I_{mean} on the vertical axis against $1/R$.
- Record the precision of the ammeter and voltmeter used in this experiment.

Figure 1**After the Investigation**

At the end of the investigation, hand in all your written work, including the graph, to the supervisor.

This documentation will be required for Stage 2 of the ISA. Ensure that you have entered your centre details, candidate number and name on all the sheets you have completed.