Essential Pre-Uni Physics C4.5
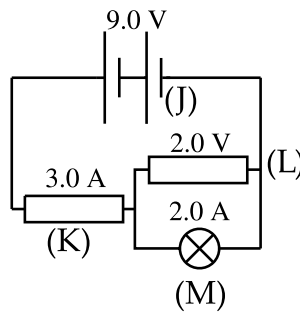
GCSE   A Level

Figure 1: Circuit diagram

Part A   Current in (J)

What is the current in (J)?

Part B   Voltage across (K)

What is the voltage across (K)?

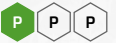## Part C   Current in (L)

What is the current in (L)?

Part D   Voltage across (M)

What is the voltage across (M)?

Essential Pre-Uni Physics C1.8

A Level
P P P

Conventional domestic $13\,\mathrm{A}$ sockets are connected with copper cables with a cross sectional area of $2.5\,\mathrm{mm^2}$. Copper has a resistivity of $1.5 \times 10^{-8}\,\Omega\,\mathrm{m}$. What is the resistance of $20\,\mathrm{m}$ of cable to 2 significant figures?

Essential Pre-Uni Physics C5.8

GCSE   A Level
C C C   C C C

A thermistor has a resistance of $800\,\Omega$ at a temperature of $16\,^\circ\mathrm{C}$. It is wired in series with a fixed resistor and a $9.0\,\mathrm{V}$ battery. A high-resistance voltmeter is connected to give a 'temperature' reading.

[Note: For this thermistor the resistance decreases as the temperature increases.]

Part A   Connecting the voltmeter   ⌃

a) If the voltage reading is to go up when the temperature increases, should the voltmeter be connected in parallel with the thermistor or the fixed resistor?

○   Fixed resistor

○   Thermistor

Part B   Resistance of the fixed resistor   ⌄

b) If the voltmeter needs to read $3.0\,\mathrm{V}$ when the temperature is $16\,^\circ\mathrm{C}$, what is the resistance of the fixed resistor to 2 significant figures?

Essential Pre-Uni Physics C2.2

A Level

P P P

Data:

- Magnitude of the charge on the electron = 1.60×10^{-19} C

How many electrons flow past a point each second in a $5.0\,\text{mA}$ electron beam?

Essential Pre-Uni Physics C3.5

A Level

P P P

Data: Magnitude of the charge on the electron = 1.60×10^{-19} C

How long does it take for a current of 6.0 A to deliver 1.5×10^{17} Cu^{2+} ions in a solution? Assume these ions are the only charged particles moving.
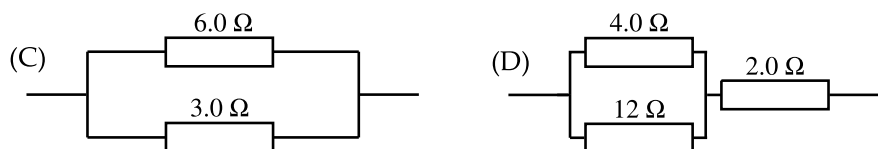
Essential Pre-Uni Physics C1.2

A Level
P P P

Figure 1: Two different resistor arrangements

Part A   Combination (C)   ⌃

What is the resistance of combination (C)? Answer to 2 significant figures.

Part B   Combination (D)   ⌄

What is the resistance of combination (D)? Answer to 2 significant figures.