Essential Pre-Uni Physics C1.2

A Level

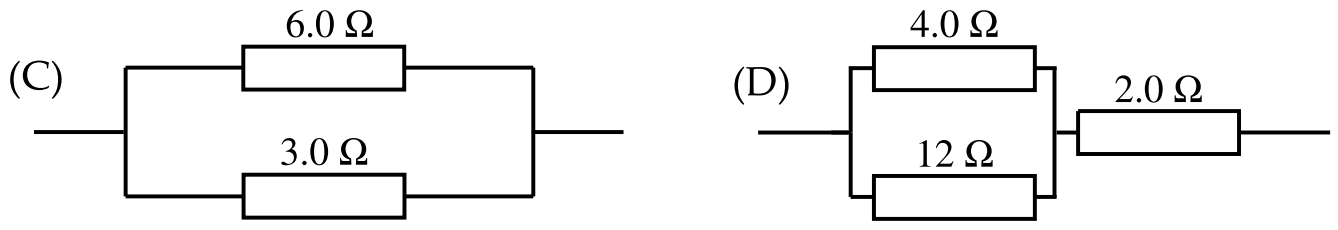

Figure 1: Two different resistor arrangements

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.

Physics. You work it out.

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?

Gameboard:

STEM SMART Physics 15 - Electricity Revision

Essential Pre-Uni Physics C2.2

A Level

Data:

- Magnitude of the charge on the electron = $1.60 \times 10^{-19}\,\mathrm{C}$

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

Gameboard:

STEM SMART Physics 15 - Electricity Revision

Essential Pre-Uni Physics C4.5

GCSE P P P A Level P P P

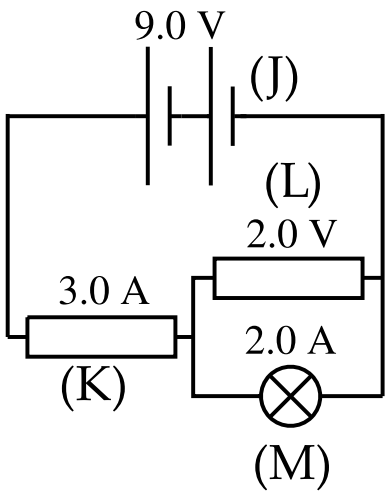

Figure 1: Circuit diagram

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)?

Gameboard:

STEM SMART Physics 15 - Electricity Revision

Essential Pre-Uni Physics C5.5

GCSE P P P A Level P P P

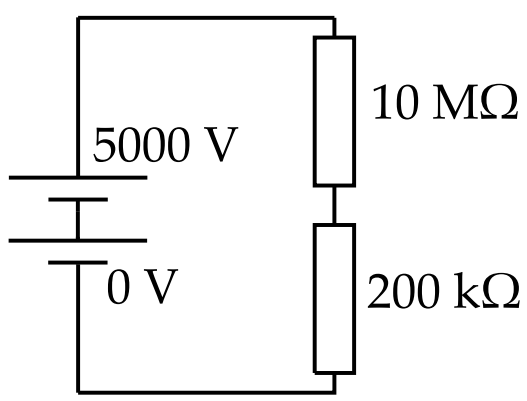

Figure 1: Circuit diagram

What is the voltage across the lower resistor in this circuit to 2 significant figures?

Gameboard:

STEM SMART Physics 15 - Electricity Revision

Essential Pre-Uni Physics C5.8

GCSE C C C
A Level 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?

Gameboard:

STEM SMART Physics 15 - Electricity Revision

Physics. You work it out.

Essential Pre-Uni Physics C6.3

A Level

A small battery is powering a powerful lamp. The terminal p.d. is $11.3\,\mathrm{V}$, and the current flowing is $10.2\,\mathrm{A}$. Assuming that the battery has an internal resistance of $2.4\,\Omega$, calculate the e.m.f. of the battery.

Gameboard:

STEM SMART Physics 15 - Electricity Revision

Essential Pre-Uni Physics C3.5

A Level

Data: Magnitude of the charge on the electron = $1.60 \times 10^{-19}\ \text{C}$

How long does it take for a current of $6.0\ \text{A}$ to deliver $1.5 \times 10^{17}\ \text{Cu}^{2+}$ ions in a solution? Assume these ions are the only charged particles moving.