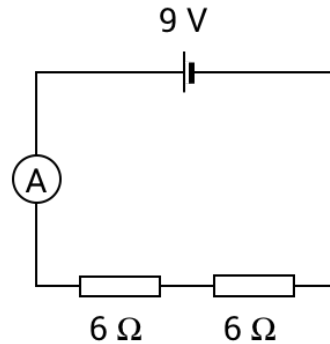


0	1
---	---

A 9 V cell is connected to two $6\ \Omega$ resistors in series, as shown below.



0	1	.	1
---	---	---	---

Show that the ammeter reading is 0.75 A.

Ammeter reading = _____ A

[2 marks]

0	1	.	2
---	---	---	---

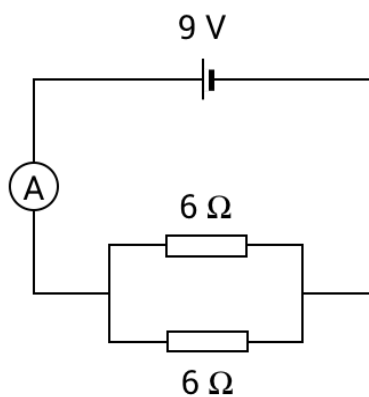
Calculate the potential difference (p.d.) across **one** of the $6\ \Omega$ resistors.

Potential difference = _____ V

[2 marks]

0	1	.	3
---	---	---	---

The resistors are then connected in parallel.
The new reading on the ammeter is now 3 A.



Calculate the current flowing through **each** resistor.

Current = _____ A

[2 marks]

0 1 . 4

What is the *equivalent resistance* of the parallel $6\ \Omega$ resistors? In other words, if they were replaced by a single resistor which maintained the current at 3 A, what would its resistance be?

Equivalent resistance = _____ Ω

[2 marks]

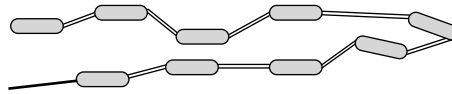
0 1 . 5

Explain why placing the resistors in **parallel** in this circuit had the effect of **increasing** the circuit current.

[2 marks]

0 2

An old set of decorative lights is made from nine identical lamps which are connected in series, as shown below.



Under normal operating conditions, the lamps draw a current of 2.5 A from a 230 V mains electricity supply.

0 2 . 1

Calculate the resistance of **each** of the lamps.

Resistance of each lamp = _____ Ω

[3 marks]

0 2 . 2

Most modern decorative lamps are wired in parallel. Write down one advantage of connecting such lamps in parallel rather than in series.

[1 mark]