

**Q1.**

An electric heater is connected to a 230 V supply.

The power supplied to the heater is 2.6 kW.

Calculate the current in the heater.

(3)

current = ..... A

**(Total for question = 3 marks)**

**Q2.**

This question is about using the mains electricity supply.

(i) An electric kettle is used to boil some water.

The mains supply voltage is 230 V.

The power supplied to the kettle is 1.9 kW.

Calculate the current in the kettle.

Use the equation

$$I = \frac{P}{V}$$

(2)

current supplied to the kettle = ..... A

**(Total for question = 2 marks)**

**Q3.**

An electric fire is connected to a 230 V mains supply.

A current of 9.0 A is supplied to the fire.

Calculate the power supplied to the fire.

Use the equation

$$\text{power} = \text{current} \times \text{voltage}$$

(2)

power = ..... W

**(Total for question = 2 marks)**

**Q4.**

A lamp is connected to a potential difference of 0.24 V.

The current in the lamp is 0.12 A.

(i) Calculate the power of the lamp.

Use the equation

$$P = I \times V$$

(2)

power of the lamp = ..... W

**(Total for question = 2 marks)**

**Q5.**

The espresso machine shown in Figure 27 is an electrical appliance.



(Source: © tanawaty/123RF)

**Figure 27**

The espresso machine has an electrical heater connected to a 440 V mains supply.

The power of the electrical heater is 3.5 kW.

(i) The rating of a fuse is the current above which it melts.

Which of these is the most suitable fuse for the espresso machine circuit?

- A** 1 A
- B** 5 A
- C** 10 A
- D** 13 A

(1)

**(Total for question = 1 marks)**

**Q6.**

A man monitors how much money he spends on electricity.  
He uses a device which calculates the cost of electrical energy used.  
He connects his 2.9 kW electric kettle to the 230 V mains supply.

(i) Calculate the current in the kettle element.

(3)

current = ..... A

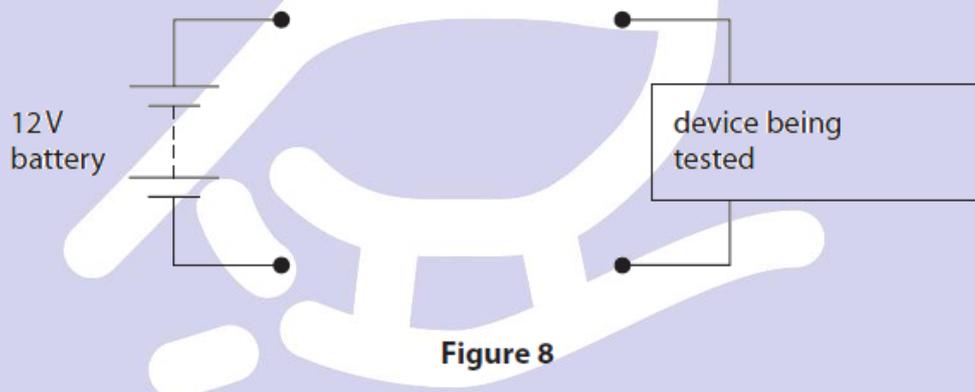
**Q7.**

A technician investigates different electrical devices that are used in a car.

The technician connects a device to the 12 V car battery.

The technician measures the current in the circuit and the potential difference (voltage) across the device.

Figure 8 shows the car battery and the device that is being tested.



(ii) The technician tests a headlamp.

The current in the headlamp is 4.8 A when connected to the 12 V battery.  
Calculate the power supplied to the headlamp.

(2)

power = ..... W

**(Total for question = 6 marks)**

**Q8.**

A student investigates resistors connected in series in an electrical circuit.

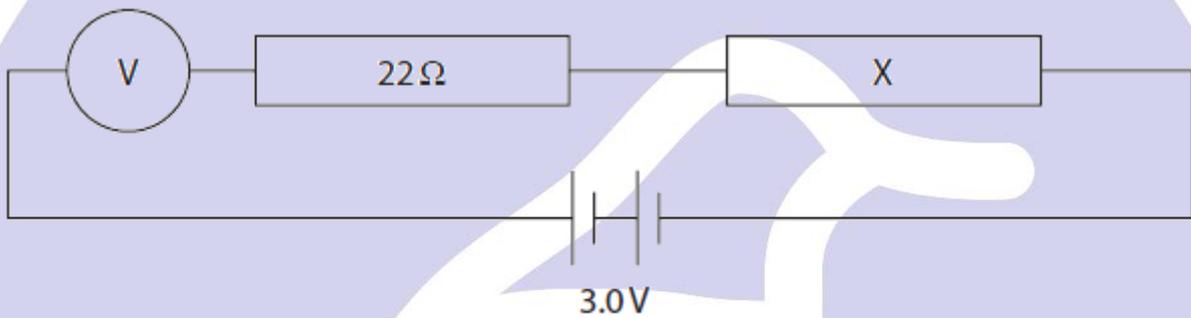
The student has

- a 3.0 V battery
- a 22  $\Omega$  resistor
- a resistor marked X.

The student does not know the value of the resistor marked X.

The student decides to measure the potential difference (voltage) across resistor X.

Figure 8 shows the circuit that the student connected.



**Figure 8**

The circuit is connected incorrectly.

The student corrects the mistake.

The voltage across resistor X is 2.1 V.

The circuit is connected to a 3 V battery.

- (iii) Calculate the power in resistor X when the voltage across X is 2.1 V and the current in resistor X is 0.041 A.

(2)

power = ..... W

**(Total for question = 2 marks)**