

GCSE Physics B (Twenty First Century Science)
J259/02 Depth in physics (Foundation Tier)

Question Set 25

- 1 Amaya builds an electrical circuit to investigate the relationship between current and potential difference for a fixed resistor.

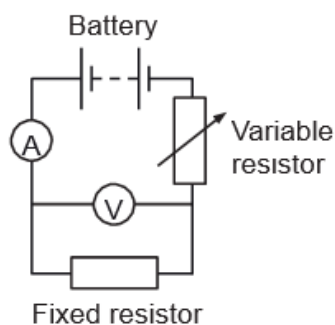


Fig. 1.1 shows Amaya's results for the fixed resistor.

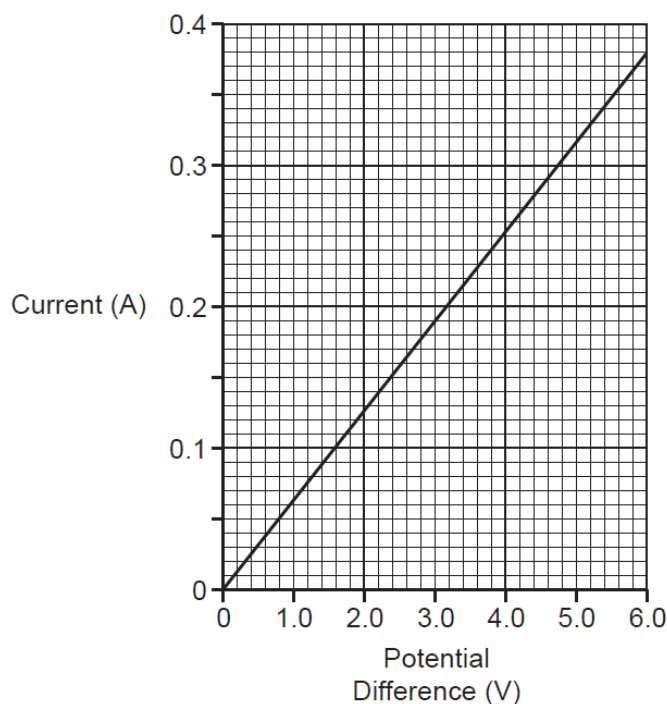


Fig. 1.1

- (a) Calculate the resistance of the fixed resistor.

Use the equation: resistance = potential difference \div current

Show your working on Fig. 1.1.

Give your answer to 1 decimal place and the **unit** for resistance.

$$R = \frac{V}{I} = \frac{6}{0.38} = 15.8 \Omega \text{ (1dp)}$$

Resistance =15.8..... Unit Ω [4]

- (b) Amaya repeats the investigation, but replaces the fixed resistor with a filament lamp. Her results are shown in **Fig. 1.2**.

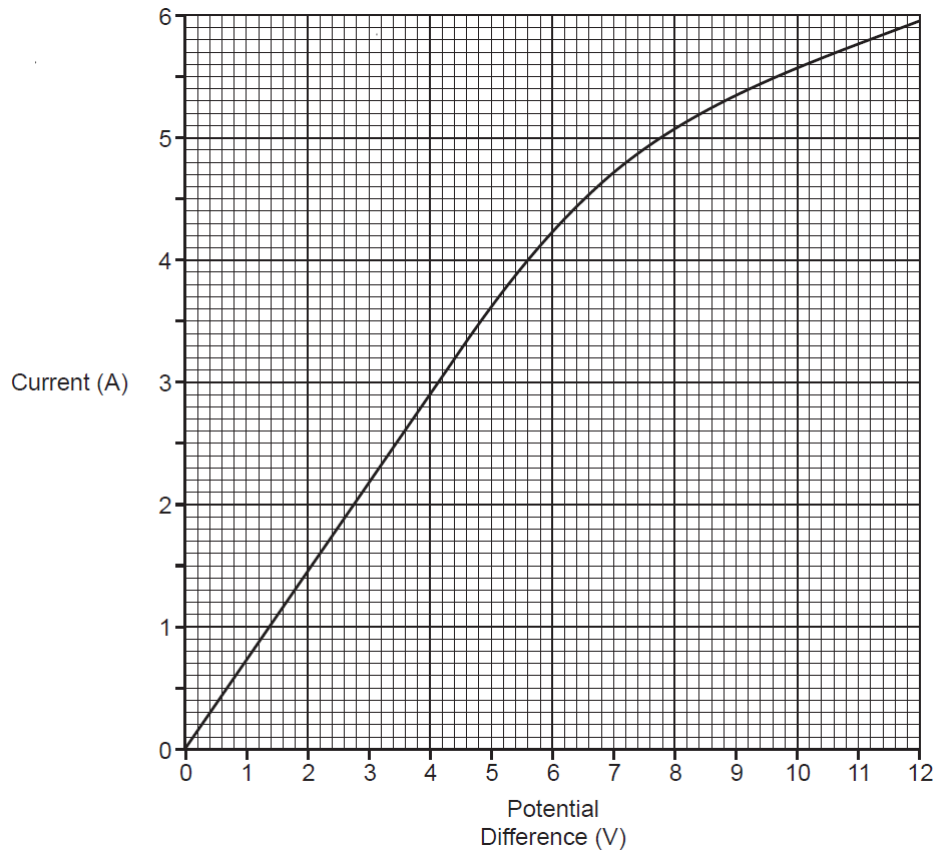


Fig. 1.2

Amaya says:

Fig. 1.2 shows that as the potential difference in the circuit increases, the resistance of the lamp increases.



Discuss Amaya's comments.

Use **Fig. 1.2** to support your answer.

[3]

Resistance is constant up to 5.6V and after that, the resistance increases.

Total Marks for Question Set 25: 7

OCR

Oxford Cambridge and RSA

Copyright Information

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website (www.ocr.org.uk) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact The OCR Copyright Team, The Triangle Building, Shaftesbury Road, Cambridge CB2 8EA.

OCR is part of the Cambridge Assessment Group; Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge