Name	Date started	Target end date

WJEC GCSE Mathematics and Numeracy (Double Award) — Question Pack

Converting between units and currencies, and reading travel and distance-time graphs to find speed, distance or rest periods. Sourced from legacy WJEC

REVISE
.wales

F1.12 — Conversion, travel & distance-time graphs

Spec 2.5.1, 2.5.2 — Unit 1 (calculator allowed)

Converting between units and currencies, and reading travel and distance-time graphs to find speed, distance or rest periods. Sourced from legacy WJEC GCSE Mathematics-Numeracy Foundation papers (3300U10/U20) and accessible content from Intermediate papers (3300U30/U40), organised for revision under the 2025 spec.

2025 SPECIFICATION

Estimated time for entire question pack: ~30 minutes

*Derived from the GCSE Higher pace of **~1.5 min/mark** (20 marks across 9 questions).*

*You are advised to **not** attempt to complete all of this in one sitting.*

ABOUT THIS QUESTION PACK

This is a **focused single-topic practice pack**, not a single mock paper. Questions are organised against the 2025 specification. Questions are ordered chronologically by sitting, with custom-written and SAM questions at the end.

INSTRUCTIONS

Use black ink or black ball-point pen. Show all working — method marks are awarded for clear setup.

A calculator is allowed on every question in this pack (Unit 1 is the calculator-allowed paper).

Conversion, travel & distance-time graphs — what the new spec asks

WJEC GCSE Mathematics (first teaching 2025) · Unit 1: calculator-allowed.

Travel graphs 2.5.1

- Read distance, time and speed from a distance-time graph.
- Identify rest periods from horizontal sections.
- Compare speeds from the steepness of different segments.

Gradient as speed 2.5.2

- Calculate average speed from a section of a distance-time graph.
- Use distance = speed × time in context.
- Convert between km/h, m/s and mph where needed.

Conversion 2.5.1

- Convert between currencies given an exchange rate.
- Convert between metric units (km / m / cm).
- Convert simple metric-imperial quantities given a conversion factor.

Exam strategy 2.5

- Always write the formula before substituting.
- Check units agree before multiplying or dividing.
- Sense-check: a 60 km journey at 30 km/h takes 2 hours, not 30 minutes.

Crib sheet »

Conversion, travel & distance-time graphs in one page

Quick-reference notes — revisit before each question. Don't use during the questions.

Currency conversion

$$\text{amount in new currency} = \text{amount} \times \text{rate}$$

e.g. £200 at 1.15 €/£ → 200 × 1.15 = €230.

Reverse: divide by the rate.

Speed, distance, time

$$\text{distance} = \text{speed} \times \text{time}$$

speed = distance ÷ time · time = distance ÷ speed.

Distance-time graph

x-axis = time, y-axis = distance from start.

Steeper slope = faster speed.

Horizontal section = at rest (not moving).

Gradient = speed

$$\text{speed} = (\text{change in distance}) \div (\text{change in time})$$

Read off two points on a straight section.

Units to watch

Match units: km/h needs hours, not minutes.

30 mins = 0.5 h. 15 mins = 0.25 h.

Common traps

- Multiplying when you should divide on a currency reverse.
- Using minutes in a km/h calculation.
- Reading a flat section as zero distance instead of zero speed.

Examiner only

18. A car travels 100 miles in 2 hours and 30 minutes.
Calculate its average speed in miles per hour. [3]

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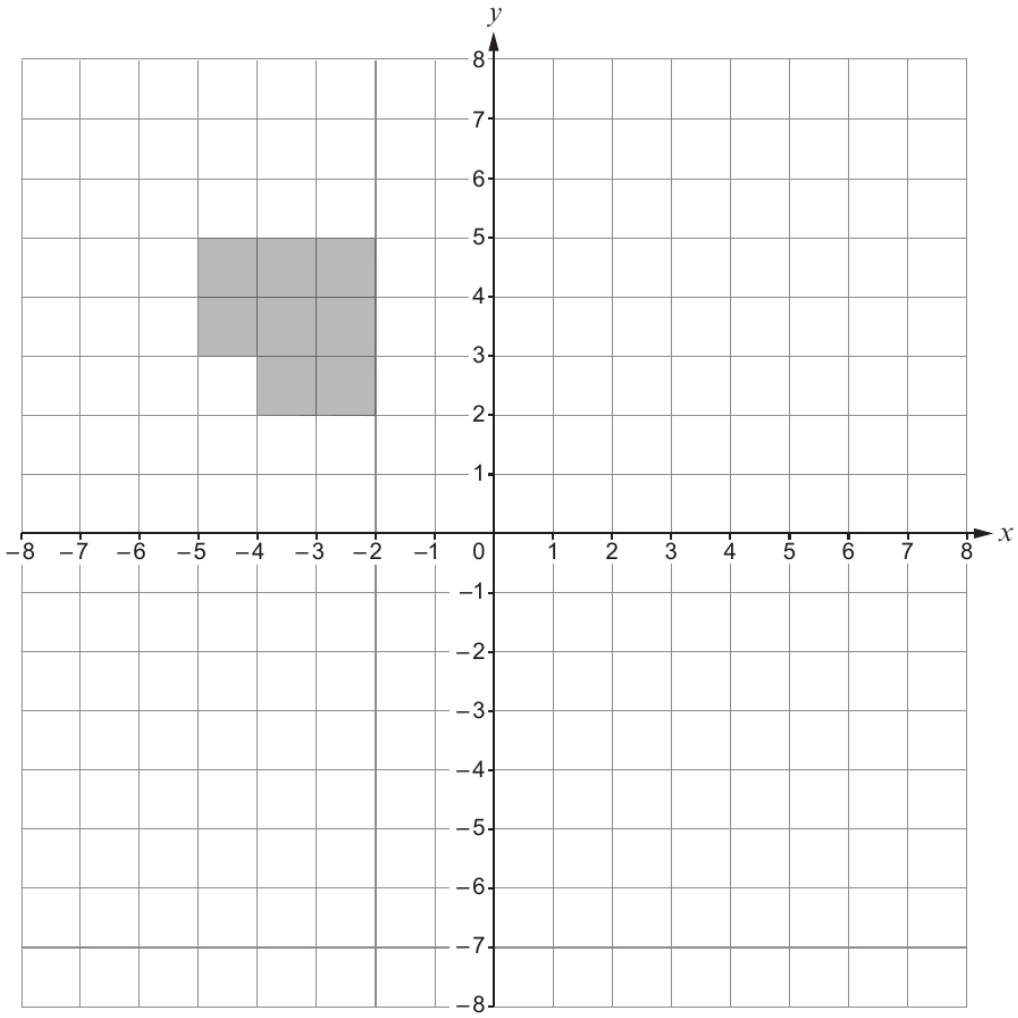
END OF PAPER

Examiner only

16. Reflect the shape below in the line $x = 1$. [2]



17. A car travels 129·5 miles in 3 hours 30 minutes.
Calculate the average speed of the car.
Give your answer in miles per hour. [3]

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Examiner only

4. Viktor runs a plumbing company that is based abroad.

(a) In April 2022, the rate of VAT that Viktor had to pay on goods increased to 23%.
In May 2022, Viktor bought goods worth 4000 euros before VAT.
If he had bought the goods before April, the VAT would have been 800 euros.

How much more VAT did Viktor pay on the goods in May than he would have done if he had bought them before April? [3]

..... euros

(b) Viktor pays 3600 euros towards his tax bill.
The exchange rate is £1 = 1.11 euros.
How much is 3600 euros in pounds?
Give your answer correct to the nearest penny. [2]

£ .....

Examiner only

16. A journey of 45 miles is travelled in 1 hour 15 minutes.
Calculate the average speed of this journey.
Give your answer in mph. [3]

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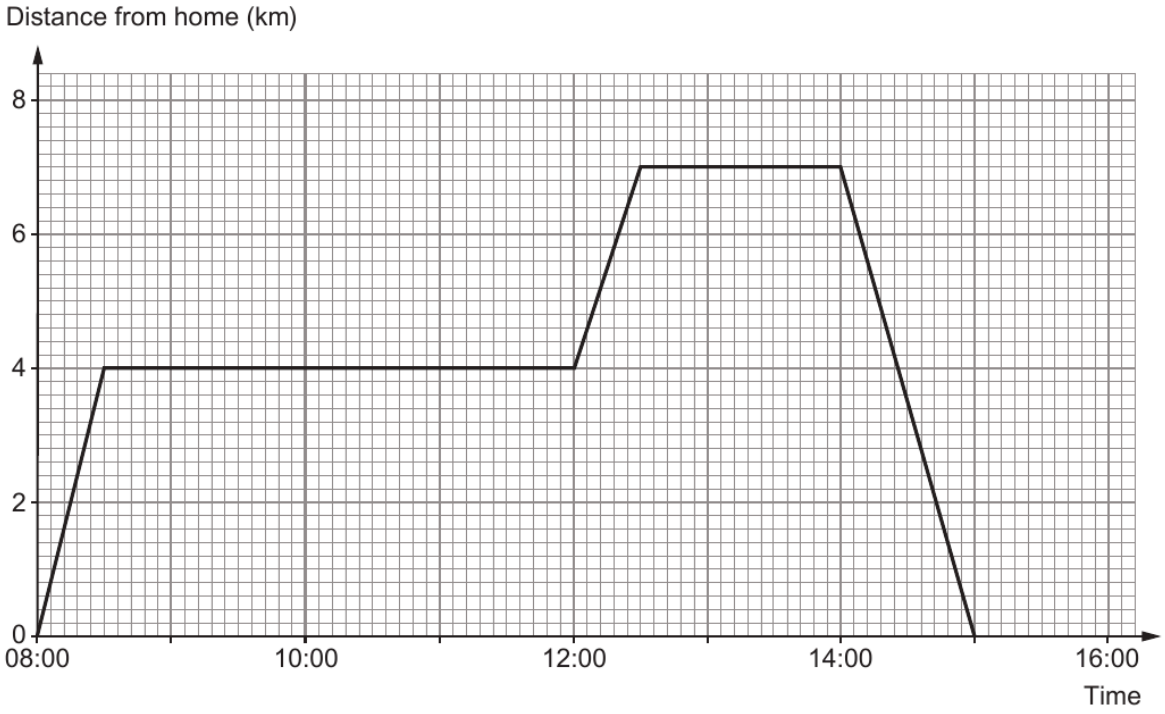
Examiner only

5. On Tuesday, Alfred travelled on a straight road.
The graph represents his journey during the day, until the time he arrived home.



(a) At what time did Alfred arrive home on Tuesday? [1]

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(b) How far, in total, did Alfred travel during the day on Tuesday? [1]

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..... km

(c) During which part of the day did Alfred travel at an average speed of 6 km per hour?
Circle your answer. [1]

08:00 to 08:30 08:30 to 12:00 12:00 to 12:30

12:30 to 14:00 14:00 to 15:00

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Examiner only

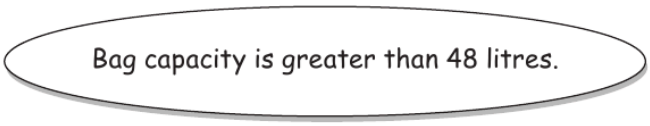
7. Idris flies from Cardiff to Faro, in Portugal.

(a) The actual flying time is 133 minutes.
The plane flies at an average speed of 8 miles per minute.

(i) Calculate the flying distance between Cardiff and Faro.
Give your answer in miles. [2]

(ii) Calculate the plane's average speed in **miles per hour**. [2]

(b) Idris takes a cabin bag on board his flight.
His bag measures 55 cm by 40 cm by 23 cm.
The label on his cabin bag says,



Is this label correct?

Yes ☐ No ☐

You must show all your working and give a reason for your answer. [3]

Examiner only

(c) Idris looks out of the aeroplane window.
He notices a village below.
Idris takes a photograph of the village to try to work out where he is.
From the photograph, he draws a sketch including some parallel streets.

His sketch is shown below.

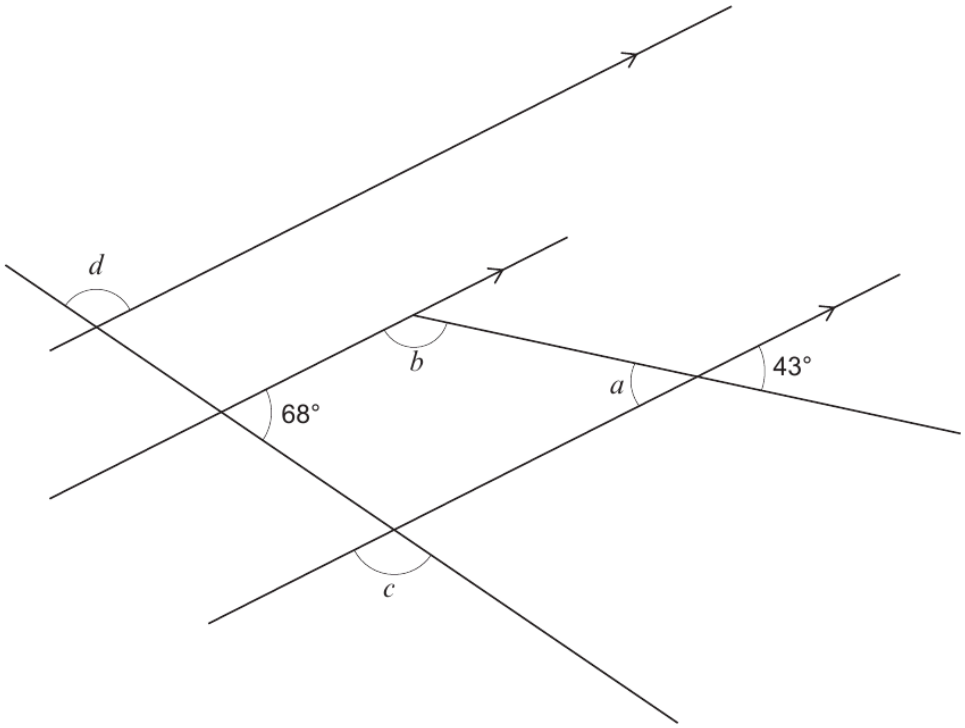


Diagram not drawn to scale

Find the size of each of the angles a, b, c and d. [4]

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a = ... ° b = ... ° c = ... ° d = ... °

Examiner only

8. Gracie decides to buy a new ZX31 camera.
On the internet, she sees advertisements for the camera she wants.

Camera Fox	*US Camera Geek*	*Sure Camera*
ZX31 camera £62.95 + £3.90 delivery	ZX31 camera $81.20 with FREE international delivery	ZX31 camera special offer. Usual price £75 NOW 14% discount AND free delivery

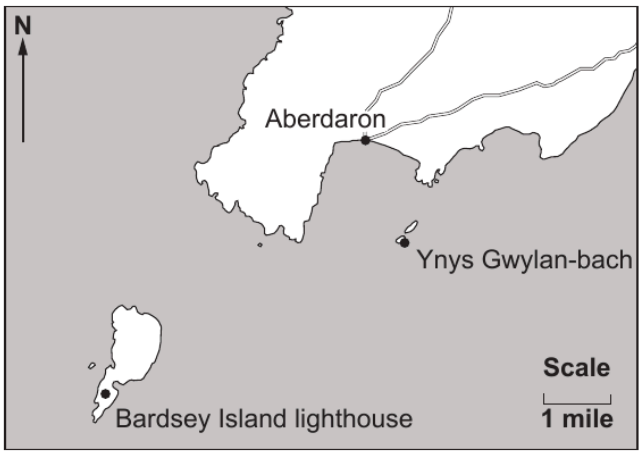
Gracie knows that the exchange rate is £1 = $1.25.

She wants to buy the ZX31 camera that is the best value for money.

Which of the advertisements offers the best option for Gracie?
You must show all your working. [5]

Examiner only

4. (a) The map below shows part of the coastline and some islands off the coast of Gwynedd.



(i) Write down the bearing of Aberdaron from Bardsey Island lighthouse. [1]

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(ii) Write down the bearing of Bardsey Island lighthouse from Ynys Gwylan-bach. [1]

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..... °

(iii) Huw can see Bardsey Island lighthouse from Ynys Gwylan-bach.
How far is the lighthouse from Ynys Gwylan-bach?
Give your answer in **kilometres**.
You must show all your working. [2]

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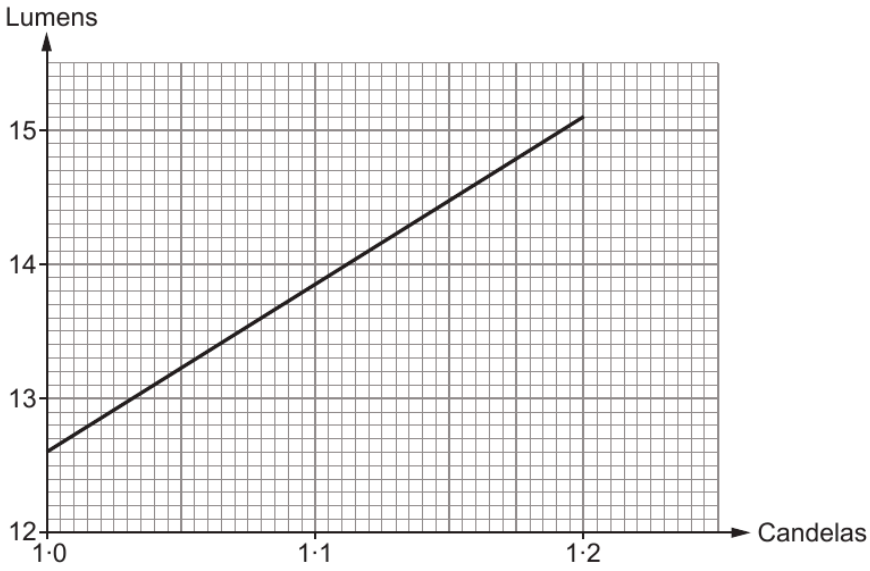
Examiner only

(b) The candela and the lumen are units that can be used to measure light intensity.

Below is a conversion graph.
You can use this graph to make approximate conversions between candelas and lumens for a particular type of light.



For this type of light, complete each of the following statements.

(i) 1·15 candelas is approximately equal to ..... lumens. [1]

(ii) 13·5 lumens is approximately equal to ..... candelas. [1]

(c) The light from Bardsey Island lighthouse has an intensity of approximately 52 000 candelas.
The light from Strumble Head lighthouse in Pembrokeshire has an intensity of approximately 1 000 000 candelas.

By estimating, complete the following statement.
You must show all your working. [2]

'The light from Strumble Head lighthouse is approximately ..... times as intense as the light from Bardsey Island lighthouse.'

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Examiner only

10. (a) Delia invests £4000 in an account that pays 3% compound interest per annum. She does not withdraw money or make any other payments into her account.

How much will Delia have in her account after **two years**? [3]

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Amount in Delia's account after two years £ .....

(b) Delia bought a gold bracelet at a car boot sale a few years ago.

(i) Delia's bracelet has increased in value by 40%. Her gold bracelet is now worth £42.

Calculate how much Delia paid for the bracelet in the car boot sale. [2]

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Delia paid £ .....

Examiner only

(ii) The density of the gold in Delia's bracelet is $20\,g/cm^3$.
The bracelet has a mass of 6×10^{-3} **kilograms**.

Calculate the volume of Delia's bracelet.
Give your answer in cm^3. [3]