Name	Date started	Target end date

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

Simple and compound interest, plus depreciation: applying a percentage repeatedly to find a future value, and contrasting linear with exponential chan

REVISE
.wales

F1.06 — Simple & compound interest

Spec 1.8.3 — Unit 1 (calculator allowed)

Simple and compound interest, plus depreciation: applying a percentage repeatedly to find a future value, and contrasting linear with exponential change. 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: ~38 minutes

*Derived from the GCSE Higher pace of **~1.5 min/mark** (25 marks across 6 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).

Simple & compound interest — what the new spec asks

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

Simple interest 1.8.3

- Use SI = PRT/100 with appropriate units.
- Distinguish between the interest and the total balance.
- Solve for any one of P, R, T given the others.

Compound interest 1.8.3

- Apply the multiplier (1 + r/100) to find future value.
- Use a power for multiple years — not yearly addition.
- Compare CI with SI for the same investment.

Depreciation 1.8.3

- Apply (1 − r/100)^N to find a depreciated value.
- Interpret depreciation in cars, equipment and similar contexts.
- Find the original value given a depreciated value (rare on Foundation).

Exam strategy 1.8

- Calculator allowed — check your power keystroke.
- Round only at the end.
- Cross-check by computing year by year for the first 1-2 years.

Crib sheet »

Simple & compound interest in one page

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

Simple interest

$$SI = (P \times R \times T) \div 100$$

P = principal, R = rate (% per year), T = years.

Total = P + SI.

Compound interest

$$A = P \times (1 + R/100)^N$$

Interest is added each year, then earns interest itself.

Depreciation

$$\text{value} = P \times (1 - R/100)^N$$

Same as compound interest but the asset loses value each year.

SI vs CI

Over short periods or low rates SI and CI are close.

Over many years, CI grows much faster — the gap widens.

Calculator tip

Use the power key: `1.04 ^ 5`.

Don’t round between years — do the whole multiplier in one go.

Common traps

- Using R as a decimal in the SI formula (it’s a %).
- Adding interest manually each year (you’ll drift).
- Forgetting that depreciation uses (1 − R/100), not (1 + R/100).

Examiner only

7. (a) 10 years ago, Matteo bought a car for £4500.
His car depreciated in value by 20% in the **first** year.
In each of the following years, his car depreciated by 14% of its previous year's value.

Show that the value of Matteo's car is now less than £950.

You must show all your working. [3]

(b) Matteo's car insurance has increased by 25% from the amount he paid last year.
His car insurance is £750 this year.

Calculate the amount Matteo paid for his car insurance last year. [2]

Matteo paid £ ..... for his car insurance last year.

Examiner only

(c) The diagram below shows the front of Matteo's garage.

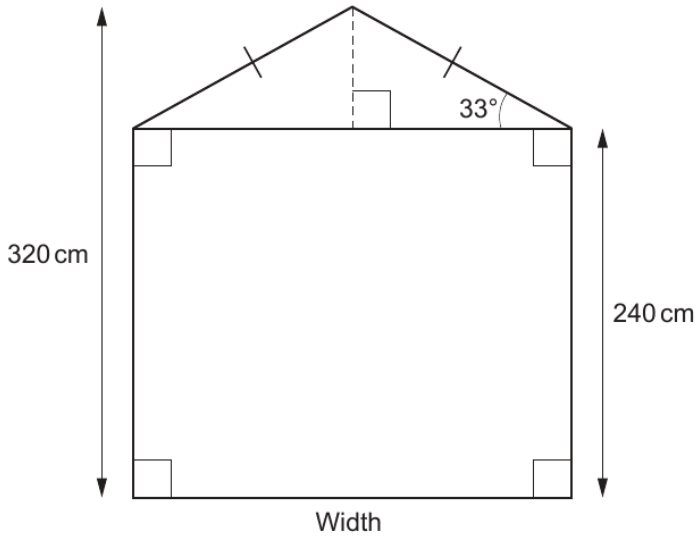


Diagram not drawn to scale

Calculate the width of Matteo's garage. [5]

Examiner only

(d) The length of Matteo's car is 400 cm, correct to the **nearest 10 cm**.
The length of his garage is 550 cm, correct to the **nearest 10 cm**.

When Matteo parks his car, he leaves exactly 70 cm between the car and the back wall of the garage.

Calculate the maximum length of the space between Matteo's car and the garage door.
[3]

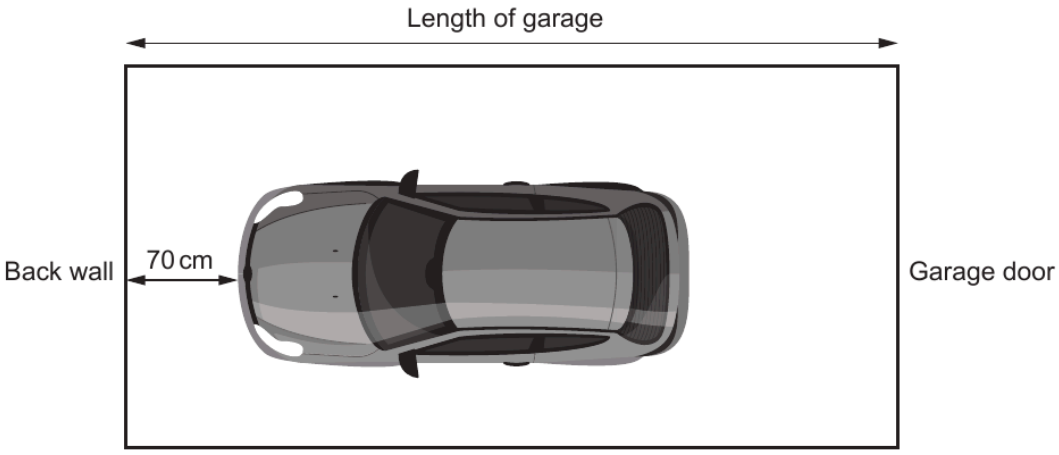


Diagram not drawn to scale

Examiner only

9. A car was bought in 1973 for £2500.

In the first year, this car depreciated by 23% of its value.
In each of the following 39 years, it depreciated by 4% of its value the previous year.

The car then started to increase in value.
In each of the next 10 years, it increased by 14% of its value the previous year.

Calculate the value of the car after these 50 years.
You must show all your working. [4]

The value of the car after 50 years is £ .....

END OF PAPER

Examiner only

1. Shiona is saving to pay for a holiday.
She has 13 weeks to save £510 to pay for her holiday.

Shiona already has savings of £95.
In the first week, she knows she can save £70.

She plans to save equal amounts of money in each of the remaining weeks.

How much does Shiona need to save in each of the remaining weeks so that she can pay for her holiday?
You must show all your working. [4]

Examiner only

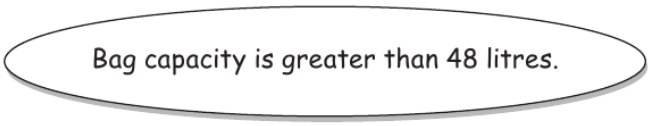
7. Idris flies from Cardiff to Faro, in Portugal.

(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.

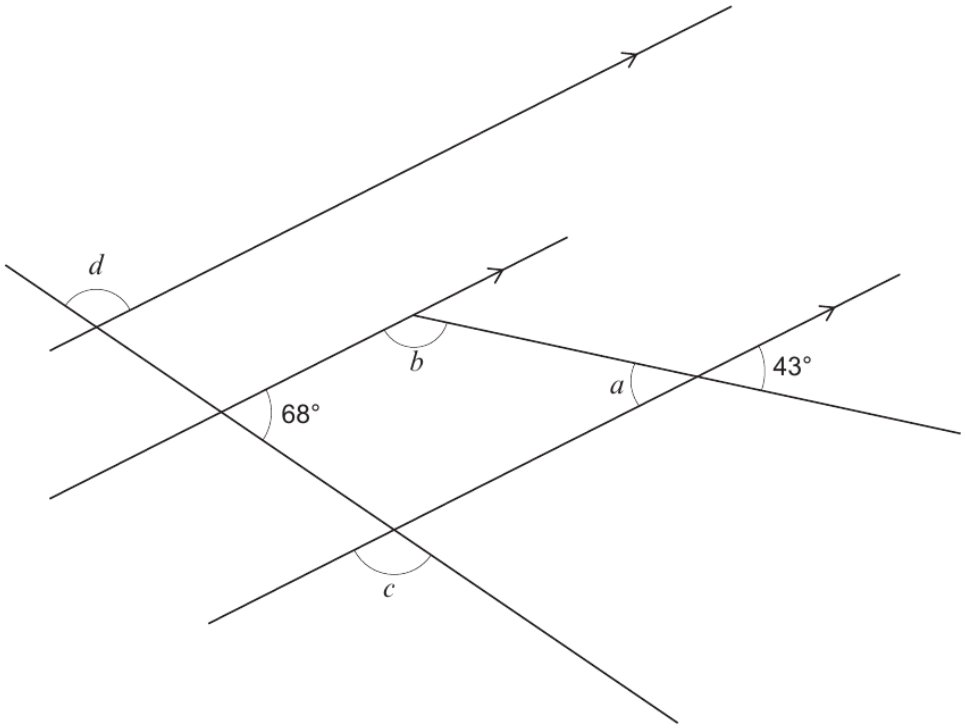


Diagram not drawn to scale

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

.....

.....

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

Examiner only

9. (a) The area of Wales is 20 735 km^2.

The table below gives the population of Wales in 1977, 1998 and 2015.

Year	1977	1998	2015
Population	2·8 million	2·9 million	3·1 million

(i) What was the increase in the population of Wales between 1977 and 1998? Circle your answer. [1]

1×10^3 1×10^4 1×10^5 1×10^6 1×10^7

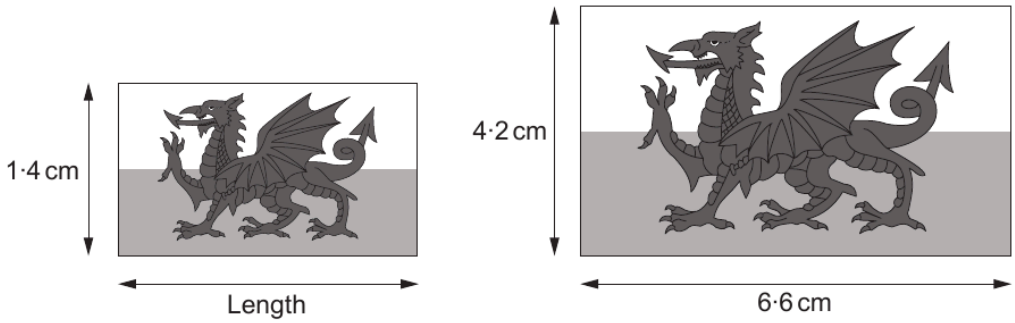
(ii) Estimate the population density of Wales in 2015. [3]

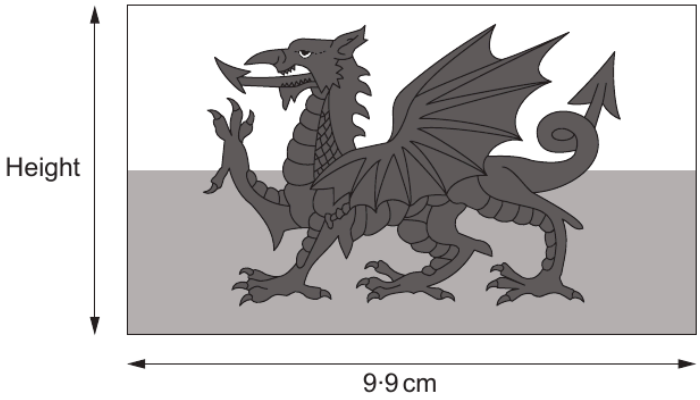
Population density of Wales in 2015 was ..... people / km^2

(b) Cardiff is the largest city in Wales.
In 2018, the population of Cardiff was approximately 360 000.
The population of Cardiff increased by 20% from 1991 to 2018.
Calculate the population of Cardiff in 1991. [3]

Examiner only

(c) DraigYma prints Welsh flags onto stickers.
Three of their mathematically similar Welsh flag stickers are shown below.





Diagrams not drawn to scale

Calculate the missing length and height in the diagrams. [4]

Length is ..... cm Height is ..... cm

END OF PAPER

Examiner only

8. Jamal is paid in dollars.
The income tax rates are as follows:

Band	Taxable income	Tax rate
Personal allowance	Up to 10 000 dollars	0%
Basic rate	10 000 dollars to 30 000 dollars	10%
Higher rate	Over 30 000 dollars	25%

Jamal's total earnings before tax are 36 000 dollars.

Calculate how much tax Jamal is due to pay in total.
You must show all your working. [6]