Name	Date started	Target end date

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

Working with ratio in real contexts: sharing a quantity in a given ratio, scaling recipes, and comparing ratios. Sourced from legacy WJEC GCSE Mathema

REVISE
.wales

F1.09 — Ratio in context

Spec 1.4.11 — Unit 1 (calculator allowed)

Working with ratio in real contexts: sharing a quantity in a given ratio, scaling recipes, and comparing ratios. 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: ~56 minutes

*Derived from the GCSE Higher pace of **~1.5 min/mark** (37 marks across 15 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).

Ratio in context — what the new spec asks

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

Sharing in a ratio 1.4.11

- Divide a quantity in a given ratio.
- Find the value of one share given the total and the ratio.
- Find the total given one share and the ratio.

Equivalent ratios 1.4.11

- Simplify a ratio to its lowest terms.
- Recognise equivalent ratios in context (recipes, mixtures).
- Convert between ratio, fraction and percentage where appropriate.

Ratio in context 1.4.11

- Apply ratio to money, ingredients, mixtures and scale.
- Use ratio to scale a recipe up or down.
- Compare two ratios to decide which is stronger / more concentrated.

Exam strategy 1.4

- Always start by adding the parts.
- Show one part = total ÷ sum of parts as a labelled line.
- Check by adding your shares — they must sum to the total.

Crib sheet »

Ratio in context in one page

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

Reading a ratio

a : b means ‘a parts to b parts’.

Total parts = a + b. Each part = total ÷ (a + b).

Share in a ratio

Share N in ratio a : b

1. Add the parts: a + b.
2. One part = N ÷ (a + b).
3. Multiply each share by its number of parts.

Scaling recipes

If a recipe is for 4 people and you cook for 6, multiply every ingredient by 6/4 = 1.5.

Equivalent ratios

Simplify by dividing both parts by their HCF.

e.g. 12 : 18 = 2 : 3 (divide both by 6).

Three-part ratios

a : b : c works the same way — total parts = a + b + c.

One part = N ÷ (a + b + c).

Common traps

- Multiplying the total by a/b instead of by a/(a+b).
- Forgetting to add the parts first.
- Mixing up the order of the ratio.

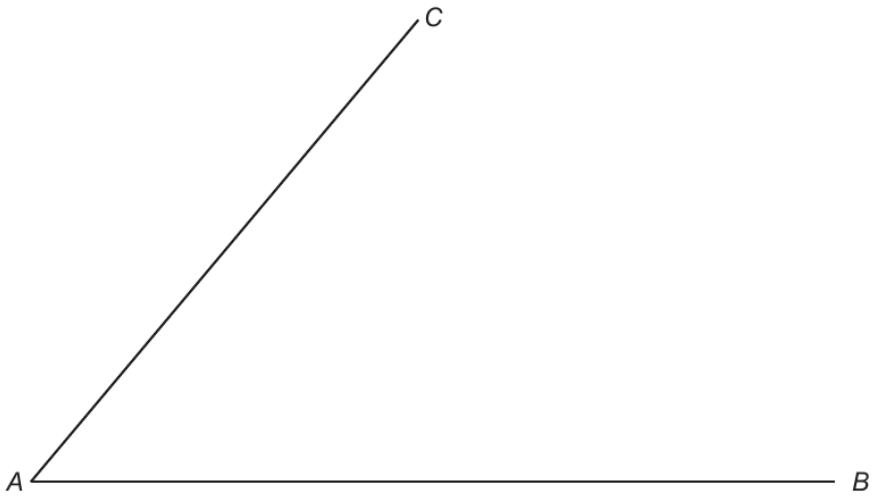
Examiner only

11. Two straight lines, *AB* and *AC*, are shown below.

The point *P* is

- equidistant from line *AB* and line *AC*,
- 6 cm from point *B*,
- **more** than 10 cm from point *A*.

Show clearly the position of point *P*. [3]



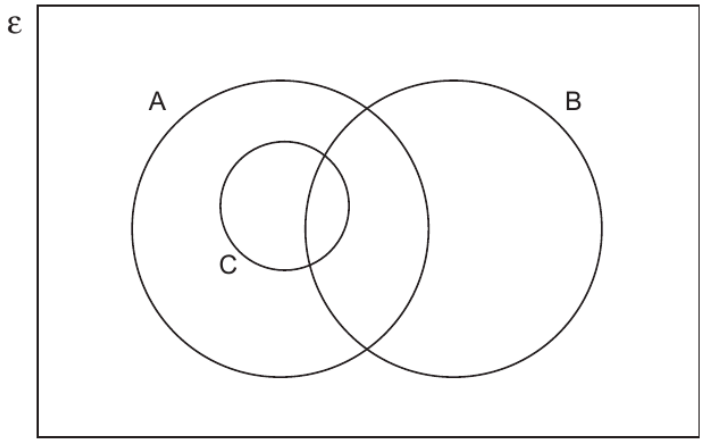
12. *(a)* Share £720 in the ratio 2 : 7. [2]

(b) Calculate the value of the reciprocal of 0·2. [2]

Examiner only

(b) In the Venn diagram below:

- Set A = multiples of 3,
- Set B = multiples of 5,
- Set C = multiples of 6.



Explain why the circle representing Set C is drawn inside the circle drawn to represent Set A. [1]

13. A sum of money is shared in the ratio 3 : 4 : 7.
The smallest share is £210.

What is the total amount of money shared?
You must show all your working. [4]

Examiner only

8. There are five numbers in a list.
The mean of the five numbers is 7.
Another number is added to the list.
The mean of these six numbers is 8·5.

Find the value of the sixth number.
You must show all your working. [3]

9. *In this question, you will be assessed on the quality of your organisation, communication and accuracy in writing.*

A sum of money is shared in the ratio 1 : 8.
The **larger** share is £16.80.
What is the total amount of money shared?
You must show all your working. [3 + 2 OCW]

Examiner only

18. There are five numbers in a list.
The mean of the five numbers is 7.
Another number is added to the list.
The mean of these six numbers is 8·5.

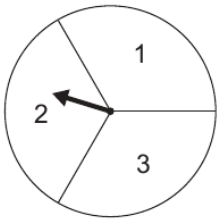
Find the value of the sixth number.
You must show all your working. [3]

19. A sum of money is shared in the ratio 1 : 8.
The **larger** share is £16.80.
What is the total amount of money shared?
You must show all your working. [3]

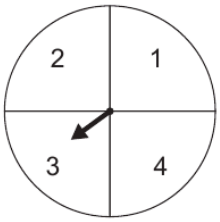
Examiner only

8. *In this question, you will be assessed on the quality of your organisation, communication and accuracy in writing.*

Two **fair** spinners are shown below.



Spinner A



Spinner B

In a game, the numbers shown by the two pointers are added together.
In the diagram, the score gained would be 2 + 3 = 5.

A winning score is 6 or more.

How many winning scores would you expect when the game is played 60 times?
You must show all your working. [5 + 2 OCW]

3300U301
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Examiner only

19. (a) Express 48 as a percentage of 400. [2]

(b) Share £45 in the ratio 8 : 1. [2]

£ ..... and £ .....

(c) Express $1-\frac{1}{2^3}$ as a single fraction in the form $\frac{a}{b}$, where a and b are integers. [2]

Answer = ...

Examiner only

(b) Rhodri finds 2 venues that arrange party nights.

Friar Hall Party night special £105 hall hire charge + £5 per person		Minfelin Lodge Party night special £207 room hire charge + £3 per person

Rhodri calculates the total cost of organising the party at each venue.
He finds that the total costs are the same.
For how many people is Rhodri planning the 21st birthday party?
You must show all your working. [3]

7. A supermarket sells 2 varieties of washing powder: Dazzle and Sparkle.
Both washing powders are sold in 3·3 kg packets.
The ratio of the prices of the washing powders is as follows.

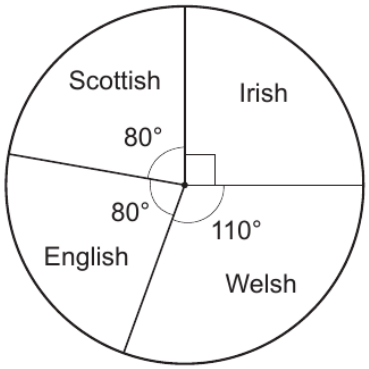
Dazzle : Sparkle = 9 : 10

The price of a 3·3 kg packet of Sparkle is £4.40.

Calculate the **cost per kilogram** of Dazzle.
You must show all your working. [4]

Examiner only

4. (a) 7200 spectators at a sports event were asked their nationality.
The results are displayed in the pie chart below.



(i) One third of the Irish spectators were female.
How many female Irish spectators were at the event? [3]

(ii) For the Welsh spectators, the ratio of the number of adults to the number of children was 6 : 5.
How many adult Welsh spectators were at the event?
You must show all your working. [4]

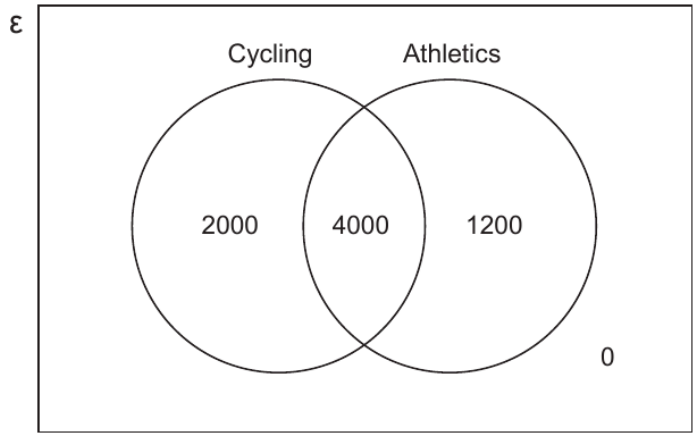
Examiner only

(b) *In this part of the question, you will be assessed on the quality of your organisation, communication and accuracy in writing.*

The 7200 spectators watched cycling, athletics, or both.
The entrance fees for the events were as follows.

Events	Entrance fee
Cycling only	£25
Athletics only	£30
Joint entry to both cycling and athletics	£40

The Venn diagram shows the number of tickets bought for the different events.



Calculate the total amount taken in entrance fees from the 7200 spectators.
You must show all your working. [3 + 2 OCW]

Examiner only

5. In a game, each competitor will have 20 attempts at throwing a ball into a bucket.
They will get 1 point for every ball that lands in the bucket.

Sioned wants to keep a record of the total points for each competitor.
She decides to show the results in a table with the total points recorded in **groups of equal width**.

(a) She starts to draw a table using five groups, as shown below.

Total points	0 to 3	4 to 7	8 to 11	… to …	… to …
Number of competitors					

Explain why these groups will not be suitable. [1]

.....

.....

.....

(b) Sioned considers using the table shown below.
She decides that it is suitable for recording all the total points in **groups of equal width**.
Fill in the two missing numbers in the **top** row. [1]

Total points	0 to 6	7 to	..... to 20
Number of competitors			

.....

.....

Examiner only

(c) Finally, Sioned decides to use the groups shown in the table below.
The results for the first 100 competitors are shown in the table.

Total points	0 to 2	3 to 5	6 to 8	9 to 11	12 to 14	15 to 17	18 to 20
Number of competitors	5	10	17	22	23	12	11

One of these 100 competitors is chosen at random.

(i) What is the probability that this competitor scored 6, 7 or 8 points? [1]

.....

.....

(ii) Explain why the following statement may be incorrect. [1]

The probability that this competitor scored 19 points is $\frac{11}{100}$.

.....

.....

.....

Examiner only

17. (a) Express 96 as a percentage of 300. [2]

(b) Share £48 in the ratio 1 : 7. [2]

Examiner only

20. Aled and Berwyn share £x in the ratio 2 : 3.

(a) Aled's share of the money is £0·4x.
What is Berwyn's share of the money in terms of x? [1]

(b) Carys and Delyth share the same amount, £x, in the ratio 3 : 7.

Show that one of these four people receives the same amount as the combined total of two of the other people. [3]

END OF PAPER

Examiner only

4. Bethan has two brothers, Andrew and Richard.

Andrew is 7 years older than Bethan.
Richard is 3 years older than Andrew.

(a) Today, the sum of all their ages is 59 years.
How old are Bethan, Andrew and Richard today? [2]

Bethan = ... years old

Andrew = ... years old

Richard = ... years old

(b) (i) Write down the ratio of Andrew's age to Richard's age when Andrew is 27.
Write the ratio in its simplest form. [2]

Ratio of Andrew's age to Richard's age = ... : .....

(ii) Explain why the ratio of Andrew's age to Richard's age can never be 1 : 1. [1]

Examiner only

5. Maria makes and sells individual portions of salad.

(a) The tomatoes Maria needs to make 5 portions of salad cost her £1.75.
Calculate the cost of the tomatoes she needs to make 40 portions of this salad. [3]

(b) Maria makes a salad dressing from oil and vinegar.
She uses oil and vinegar in the ratio 3 : 1.
Maria makes 280 ml of salad dressing.
Calculate the quantity of oil and the quantity of vinegar in the salad dressing. [3]

Oil ..... ml

Vinegar ..... ml

(c) It costs Maria £24 to make 40 portions of salad.
She sells all these portions of salad for 90p each.

Calculate the **percentage** profit that Maria makes. [4]

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]

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]

Delia paid £ .....

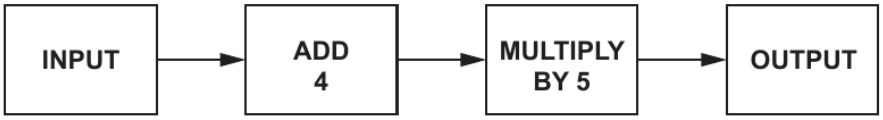
Examiner only

(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]

Examiner only

11. A number machine is shown below.



Complete the table below. [5]

INPUT	OUTPUT
–7	
	–100
2·5	
n	

Space for working:

12. **Estimate** the value of 33 × 7940.
You must show your approximations in your working. [2]