REVISE
.wales

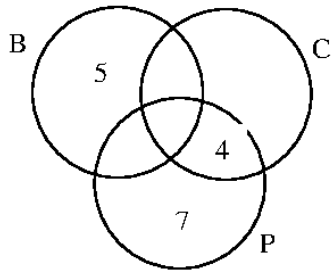
1.14 — Infographics, schedules & Venn diagrams

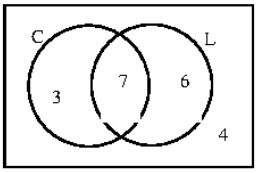
Mark schemes for the 1.14 question pack

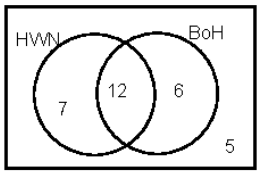
Spec 1.7.1, 1.7.2, 1.7.3 — Unit 1

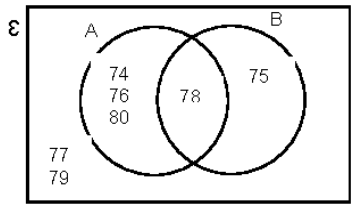
SOLUTIONS · 2025 SPECIFICATION

Mark schemes for the 9 questions in the corresponding revise.wales question pack (26 marks total). Sources: legacy WJEC GCSE papers, WJEC SAM, and custom-authored mark schemes.

5.(a)	 5 in correct position. 4 in correct position. 7 in correct position.		B1 B1 B1	Strict FT 'their entries such that total number of students = 28. Allow 'double entries' in some parts for this FT, e.g. 'the 4 placed alongside the 1'.
5.(b)	2		B1	Allow 'double entries' in some parts for a possible FT, e.g. 'the 4 placed alongside the 2'.
5.(c)	$\frac{16}{28}$ or equivalent ISW		B2	FT 'their total number for Biology' for the numerator. Allow 'double entries'. B1 for a correct numerator in a fraction <1. B1 for a denominator of 28 in a fraction <1. Penalise −1 for only words (16 out of 28) or only ratio (16:28).

7.(a)				Any 'blank space' to be taken as 0.
			B1 B1	For the 4 in correct position. For the 7 in correct position.
			B1	For the 3 AND 6 in correct positions. OR two of the following conditions met (i) 10 − 'their (non-zero) 7' (ii) 13 – 'their (non-zero) 7'. (iii) total of four numbers = 20. SC1 for all regions correct but using alternative notation e.g. tallies.
7.(b)	9/20 or equivalent. ISW		B2	B1 for a numerator of 9 (F.T. 'their 3' + 'their 6') in a fraction < 1. B1 for a denominator of 20 in a fraction < 1

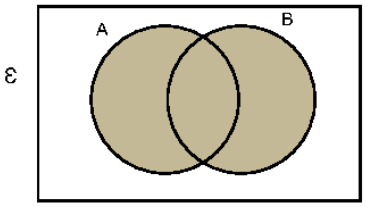
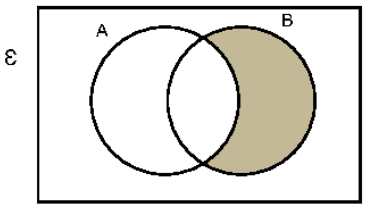
2.(a)	 12 AND 5 in correct position. Total of 18 for '*Bread of Heaven*' Overall total of 30.	 B1 B1 B1	Any 'blank space' to be taken as 0. If 'notches/tallies' are used, penalise −1 once. B0 if any other number written in the same section. Allow more than one number in the same section. Allow more than one number in the same section.
2.(b)	$\frac{19}{30}$ or equivalent. ISW	B2	B1 for a numerator of 19 OR FT 'their total for *HWN*' in a fraction < 1. B1 for a denominator of 30 OR FT 'their total' in a fraction < 1. An answer of 19/30 gains B2 regardless of 'their Venn diagram'. Penalise incorrect notation (e.g. '19 in 30') −1.

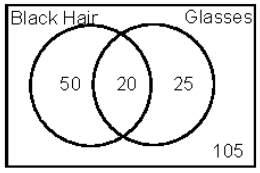
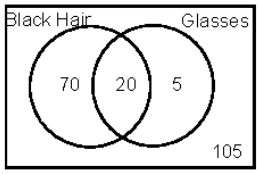
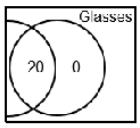
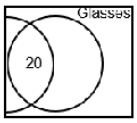
2. 	B2	Correct groupings of all 7 numbers within and outside the two circles (with or without a rectangle). B1 for 5 or 6 correctly placed numbers. No credit for a number shown in more than one section. Penalise −1, once only, if a number not in the universal set is noted. Ignore labelling for this B2 or B1. (i.e. ignore missing, conflicting or incorrect labels.)
	B1	*Allow intent of drawing circles and a rectangle.* Two intersecting circles correctly labelled A and B OR 'even numbers' and 'multiples of 3' (but not conflicting labels or labels that conflict number placements) within a rectangle. Allow missing 'ε' symbol.

Organisation and Communication	OC1	For OC1, candidates will be expected to: • present their response in a structured way • explain to the reader what they are doing at each step of their response • lay out their explanation and working in a way that is clear and logical • write a conclusion that draws together their results and explains what their answer means
Accuracy of writing.	W1	For W1, candidates will be expected to: • show all their working • make few, if any, errors in spelling, punctuation and grammar • use correct mathematical form in their working • use appropriate terminology, units, etc
3.(a) $A \cap B$	B1	
3.(b) B'	B1	
4 Four numbers with a range of 10. Four numbers with a total of 36. Four numbers with a median of 8. Possible answers for all three marks are 5,5,11,15 or 5,6,10,15 or 5,7,9,15 or 5,8,8,15	 B1 B1 B1	B0 if all four original numbers used.
5. (number of females in Porth =) $\frac{90}{360} \times 128$ OR (number of males in Porth =) $\frac{120}{360} \times 72$ (number of females in Porth =) 32 (number of males in Porth =) 24 (Probability from Porth =) $\frac{56}{200}$ or equivalent ISW	M1 A1 A1 A1	Or equivalent *Answers may be seen on the diagram.* An answer of 32 implies M1. An answer of 24 implies M1. FT ('their 32' + 'their 24') /200 provided M1 gained. Penalise incorrect notation −1. e.g. '56 in 200'.
6. sin (QPR) = $\frac{9{\cdot}6}{16{\cdot}7}$ (QPR =) $\sin^{-1}$ (9.6/16·7) or $\sin^{-1}$ (0·57..) = 35·1(°) or 35·09(°) or 35·089(…°)	M1 m1 A1	 Implies M1. Allow any answer that rounds to 35(°)
6.Alternative method. ***Correct** use of 'two-step' method.* *(x)* = 35·1(°) or 35·09(°) or 35·089(…°)	 M2 A1	 *A partial trigonometric method is M0.* Allow any answer that rounds to 35(°)
7. 7x + 2y = (£)41.5(0) AND 4x + 3y = (£)29.75 Method to eliminate variable (Attempt at equal coefficients and subtraction) First variable found x =(£) 5 or y = (£)3.25. Substitute to find the 2nd variable. Second variable found.	B1 M1 A1 m1 A1	Allow use of other letters to denote variables. B0 for using 4150 and 2975. FT 'their equations' if of equal difficulty. Allow 1 error in one term, not one with equal coefficients. C.A.O. (for their equations if FT.) F.T. their '1st variable'. FT answers should be given to the nearest penny (rounded or truncated). If M0, award SC2 (with possible B1) for both answers of (£) 5 AND (£)3.25.

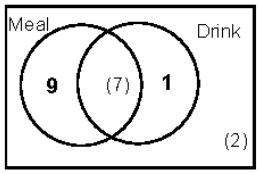
WJEC GCSE MATHEMATICS

AUTUMN 2020 MARK SCHEME

GCSE *Mathematics* Unit *1*: *Higher* Tier	Mark	Comments
1.(a) 5n − 3	B2	B1 for sight of 5n. Mark final answer.
1.(b) 17	B1	
1.(c) 2n + 2 OR 2(n + 1)	B2	If 2n + 2 is not their final answer allow B1 for sight of 2n + 2 in earlier work. B1 for a correct answer not simplified or incorrectly simplified e.g. n + n + 2.
2.(a)(i) 	B1	
2.(a)(ii) 	B1	
2.(b) A valid statement. e.g. 'all multiples of 6 are also multiples of 3' 'because 3 goes into 6', '6 is a multiple of 3'. '3 is a factor of 6'.	E1	Allow e.g. '(set) C is a subset of (set) A'. 'it is a multiple of 3' ' 6, 12, ... are also multiples of 3'.
3.(a) 9 −7	B2	B1 for each.
3.(b) At least 6 correct plots and no incorrect plot. A smooth curve drawn through their plots.	P1 C1	FT 'their (−2,9)' and 'their (2,−7)' Allow ± '½ a small square'. FT 'their 8 plots'. OR a curve through the 6 given points and (−2,9) and (2,−7). Allow intention to pass through their plots. (± 1 small square horizontal or vertical.)
3.(c) Line y = 1 drawn −0·8 AND 4·8	B1 B1	Must be at least 2cm long. FT intersection of 'their curve' with 'their y = 1' only if exactly two points of intersection and $y \neq 0$. If curve drawn, but no line drawn, allow a FT from intersection of 'their curve' with the line y = 1 only if exactly two points of intersection for B0 B1. Allow ± '1 small square'.

Unit 1: Higher Tier	Mark	Comments
1.(a)  20 AND 105 in correct position Total of 70 for *Black Hair* Overall total of 200	 B1 B1 B1	If 'notches/tallies' are used, penalise −1 once. B0 if any other number written in the same section. FT 'their 50' + 'their 20', provided both are non-zero values. Note: The answer below is awarded B1B0B1. 
1.(b) $\frac{45}{200}$ or $\frac{9}{40}$ or equivalent. ISW	B2	For B2 or B1, the numerator and denominator must be a whole number. FT $\frac{\text{'their 20'} + \text{'their 25'}}{200}$ provided both sections not blank. Award B1 for one of the following: • a numerator of 45 in a fraction < 1 • FT 'their 20' + 'their 25', provided both sections are not blank, as a numerator in a fraction < 1 • a denominator of 200 in a fraction < 1. An answer of $\frac{45}{200}$ gains B2 regardless of 'their Venn diagram'. Penalise incorrect notation (e.g. '45 in 200') −1. Note:  An answer of $\frac{20}{200}$ is awarded B2.  An answer of $\frac{20}{200}$ is awarded B1.

2(a) 20:40	B1	
2(b) 10(:)10 (a.m.) or 'ten past ten' or equivalent	B3	Allow use of decimal point, a gap, no gap as a 'spacer' in time throughout Accept times given in 24hr or a.m. format throughout. B2 for any one of the following: • sight of (0)9(:)48 (tram) • sight of (0)9(:)70 • arrives 5 minutes early (before 10(:)15) • an answer of 10(:)10 p.m. • use of multiples of 12 minutes from 8 a.m. with 8(:)12, 8(:)24 and 8(:)36 seen with an error in working but 22 mins correctly added to their final multiple (which must be between 09:36 and 09:53 inclusive) B1 for any one of the following: • use of multiples of 12 minutes from 8 a.m. with 8(:)12, 8(:)24 and 8(:)36 seen • (tram at) 9(:)00 • 10(:)00 with attempt to subtract 12 minutes • (10:00 tram arrives at) 10(:)22 • 60 ÷ 12 (= 5) or 5 × 12 = 60 • 5 trams per hour (until 10:00) An answer of 10(:)37 is awarded B0 unless any of criteria for B2 or B1 met

Unit 2: Higher Tier	Mark	Comments
3.(a)  	B2	Answers on diagram take precedence. For 9 AND 1 in correct position. Do not award B2 if more than one number is shown in the same section. Ignore 2 and 7 duplicated (in the correct place) for this B2. If B2 not awarded, award B1 for one of the following, provided no sections are blank and values are whole numbers: • 'their 9' + 'their 1' = 10 • 7 + 'their 9' = 2 × (7 + 'their 1'). A B1 may be awarded even if more than one number is shown in the same section as long as the total for awarding a B1 is correct.
3.(b) $\frac{16}{19}$ or equivalent. ISW	B2	FT $\frac{\text{'their 9'} + 7}{19}$ in a fraction < 1, provided Meal only not blank. If not B2, award B1 for one of the following in a fraction < 1: • a numerator of 16 • a numerator of 'their 9' + 7, provided Meal only section not blank • a denominator of 19 • a denominator of 'their 9' + 'their 1' + 9. An answer of $\frac{16}{19}$ gains B2 regardless of 'their Venn diagram'. Penalise incorrect notation (e.g. '16 in 19') −1.

18. Area scale factor: $\left(\sqrt[3]{3821/569}\right)^2$ (= 3·559…) OR $\left(\sqrt[3]{569/3821}\right)^2$ (= 0·280…) or equivalent.	M2	May be seen in parts. Allow $\left(\sqrt[3]{3821}\right)^2 : \left(\sqrt[3]{569}\right)^2$, or equivalent (written as a ratio). Award M1 for: • $\sqrt[3]{3821/569}$ (= 1·886…) • $\sqrt[3]{569/3821}$ (= 0·530…) • $(3821/569)^2$ (= 45·095…) • $(569/3821)^2$ (= 0·022...) • $\left(\sqrt[3]{3821}\right)^2$ (= 244·409…) AND $\left(\sqrt[3]{569}\right)^2$ (= 68·665…)
Cross-sectional area of larger solid = $29 \times \left(\sqrt[3]{3821/569}\right)^2$ OR $29 \div \left(\sqrt[3]{569/3821}\right)^2$ or equivalent.	m1	Must be from M2.
103·2(…cm^2)	A1	CAO. Accept answers in the range 103·2(cm^2) to 103·3(cm^2). Allow 103 provided not from premature approximation

End of solutions