GCSE MARKING SCHEME

SUMMER 2023

GCSE
MATHEMATICS
UNIT 2 – FOUNDATION TIER
3300U20-1

INTRODUCTION

This marking scheme was used by WJEC for the 2023 examination. It was finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conference was held shortly after the paper was taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners.

It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conference, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

WJEC GCSE MATHEMATICS

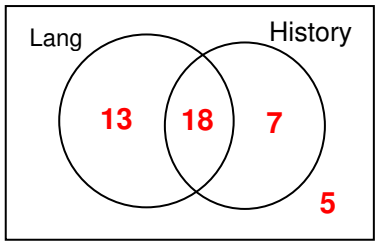
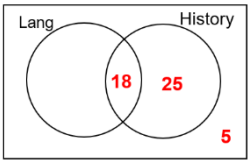
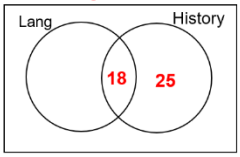
SUMMER 2023 MARK SCHEME

Unit 2: Foundation Tier	Mark	Comments
1.(a) 15214	B1	
1.(b) 5	B1	Allow embedded answers.
1.(c) 824	B1	
2.(a) certain	B1	
2.(b) impossible	B1	
2.(c) unlikely	B1	
3.(a) $\frac{12}{19}$ $\frac{42}{79}$	B2	B2 for the two correct fractions circled, with no incorrect fractions circled. B1 for one of the following: • one fraction circled, which is correct. • two fractions circled, one of which is correct. • three fractions circled, two of which are correct.
3.(b) 4 boxes shaded	B1	
4.(a) cylinder	B1	
4.(b) (regular) pentagon	B1	
4.(c) parallelogram	B1	
5. 11 13 15 17 20 22 29 or 29 22 20 17 15 13 11 (Median =) 17	M1 A1	For arranging the 7 numbers in ascending or descending order
6. a = 30 b = 17 c = 40 d = 13	 B1 B1 B1 B1	Answer space takes precedence. CAO F.T. 107 – 3 × 'their a' F.T. 57 – 'their b' Strict F.T. 100 – 'their a' – their b' – 'their c'
7.(a) acute	B1	
7.(b) square	B1	
8.(a)(i) subtract eleven (from the previous term)	B1	Accept 'take away 11', '– 11' or '73 - 11n'. B0 for n – 11.
8.(a)(ii) multiply (previous term) by four	B1	Accept 'times by 4' or '× 4'. B0 for n × 4
8.(b)(i) (x =) 31	B1	Accept embedded answers, unless contradicted.
8.(b)(ii) (w =) 103.1	B1	Accept embedded answers, unless contradicted.
9.(a) $\frac{3}{8}$ × 142 OR (142 ÷ 8) × 3 = 53.25 ISW	M1 A1	 Award M1 A0 for one of the following: • $\frac{213}{4}$ • $53\frac{1}{4}$ • 426 ÷ 8 • An unsupported 53.3
9.(b) 17.16 ISW	B1	

10. (Number of red discs = 2/5 × 10 =) 4 (Total number of discs = 10 + 10 =) 20 (Probability of a red disc =) $\frac{4}{20}$ ISW	B1 B1 B1	Allow 4/10 or '4 out of 10' or (number of blue discs = 3/5 x 10 =) 6 May be seen in the denominator of their answer. Implied by number of red discs = 4 AND number of blue discs = 16. F.T. 'their number of red discs'. F.T. $\frac{\text{'their number of red discs'}}{20}$ provided < 1. Award B1 B1 B1 for an unsupported final answer of 4/20 or equivalent.
10. Alternative method *(Probability of a red disc =) 2/5 ÷ 2* *2/10 ISW*	 *M2* *A1*	
10. Organisation and Communication Accuracy of writing	OC1 W1	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. 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.
11.(a) (x =) 360 – (115 + 97 + 42) or equivalent. = 106	M1 A1	Check diagram for answer. Note: 360 – 254 Note: Award M1A1 for a correct embedded answer BUT only M1A0 if contradicted by $x \neq 106$.
11.(b) $y = \frac{180 - 78}{2}$ = 51	M1 A1	Check diagram for answer. Note: $\frac{102}{2}$ Award M1 for sight of $78 + y + y = 180$. Note: Award M1A1 for a correct embedded answer BUT only M1A0 if contradicted by $y \neq 51$.
12.(a) $\frac{1}{6}$	B1	

12.(b) 31 43 47	B2	Answer space takes precedence. Award B2 for all three primes. Accept in any order. Award B1 for two correct primes. If no answers given on answer spaces, and numbers given are circled/clearly indicated, award B1 for one of the following: • two correct primes provided no more than 3 numbers selected • all 3 primes and 1 incorrect number if 4 numbers selected.
13. Isaac **36** Nadia **12** Dewi **24**	 B1 B1 B1	Answer space takes precedence. CAO FT ⅓ of 'their Isaac'. Allow truncation or rounding where a whole number does not result on FT. FT 2 × 'their Nadia'. Allow truncation or rounding where a whole number does not result on FT. If no answers are given on answer space, ages must explicitly be identified as a final answer for a possible B1B1B1.
14.(a) −2 (+)4	B2	Award B1 for one of the following: • −2 • 'their −2' + 6 evaluated correctly provided 'their –2' is negative.
14.(b) 0·7 or equivalent	B2	Mark final answer. Award B2 for unsupported 0·7 or not from incorrect working. Award B1 for one of the following: • sight of (+)27·9 (not (+)27·9g and not –27·9(g)) • sight of −27·2 (not −27·2h) • 0·7 (with additional letters) • a final answer of 55·1 (27·9 implied).

15. Correctly drawn pie chart within tolerance **AND** correctly labelled **Red** = 72(°) (allow 70° to 74°) **Green** = 108(°) (allow 106° to 110°)	B3	Award B2 for one of the following: • correctly drawn pie chart within tolerance but not labelled or incorrectly labelled • pie chart drawn within tolerance but not a straight line • pie chart drawn not starting from the centre (but end point within tolerance) • sight of red = 72(°) • sight of green = 108(°). Award B1 for sight of one of the following: • 72(°) • 108(°) • (red=) $\frac{2}{10} \times 360$ or equivalent • (red=) $\frac{2}{5} \times 180$ or equivalent • (green=) $\frac{3}{10} \times 360$ or equivalent • (green=) $\frac{3}{5} \times 180$ or equivalent • 'their **derived** 72' and 'their **derived** 108' drawn correctly, provided that 'their 72' + 'their 108' = 180 and identified as red and green, and not 90°.
16. $\frac{45}{1{\cdot}25}$ or equivalent	M2	May be seen in stages. Must be a complete and correct method e.g. $\frac{45}{75} \times 60$ or $\frac{45}{5} \times 4$ (working with 15 mins) Award M1 for sight of one of the following: • $\frac{45}{1 \text{ hour } 15 \text{ mins}}$ • $\frac{45}{1{\cdot}15}$ • 39·13(0…) • $\frac{45}{75}$ • 0·6
36 (mph)	A1	CAO.
17. (Volume of cuboid = 4 × 5 × 20 =) 400 (cm^3)	B1	Award B0 if 400 has come from incorrect working or if subsequent working is seen (e.g. finding the total surface area or 4 × 5 × 20 = 400, 400 × 2 = 800).
(Volume of cube = 3 × 3 × 3 =) 27 (cm^3)	B1	
(Number of cubes =) $\frac{4 \times 5 \times 20}{3 \times 3 \times 3}$ or equivalent	M1	FT 'their 400' ÷ 'their 27', provided 'their 27' ≠ 3 and that **B1 has previously been awarded or 4 × 5 × 20 and 3 × 3 × 3 seen.**
= 14·8(…..)	A1	May be implied in the final answer.
(Number of complete cubes =) 14	B1	FT only if truncation required. If $\frac{4 \times 5 \times 20}{3 \times 3 \times 3}$ = 14 (complete cubes) is seen, then award B1 B1 M1 A1 B1.

18.(a)(i)	235(°)	B1	
18.(a)(ii)	055(°)	B1	B0 for 55(°)
18.(b)	P and S	B1	Ignore any sketches (correct or incorrect). Accept in any order. Allow (00)5(°) and 355(°).
19.(a)	 5 AND 18 in correct position. Total of 25 for *History.* Overall total of 43	 B1 B1 B1	Diagram takes precedence. If 'notches/tallies' are used, penalise −1 once. Award B0 for one of the following: • any other number written in the same section • 4 and 1 written for 5. FT 'their 7' + 'their 18', provided both sections are non-zero and no section is blank. FT 'their 13' + 'their 18'+ 'their 7' + 'their 5' provided all sections are non-zero and no section is blank. Note: The following answers are awarded  B1B0B0  B0B0B0
19.(b)	$\frac{31}{43}$ or equivalent. ISW	B2	For B2 or B1, the numerator and denominator must both be whole numbers. For B2, accept: • 72·0(9…)% or 0·720(9…). • 72·1% or 0·721 • 72% or 0·72 from correct working. FT $\frac{\text{'their 13' + 'their 18'}}{43}$ provided neither section is blank. Award B1 for one of the following: • a numerator of 31 in a fraction < 1 • FT 'their 13' + 'their 18', provided neither section is blank, as a numerator in a fraction < 1 • a denominator of 43 in a fraction < 1. An answer of $\frac{31}{43}$ gains B2 regardless of 'their Venn diagram'. Penalise incorrect notation (e.g. '31 in 43') −1.