GCSE MARKING SCHEME

SUMMER 2023

GCSE
MATHEMATICS
UNIT 1 – FOUNDATION TIER
3300U10-1

INTRODUCTION

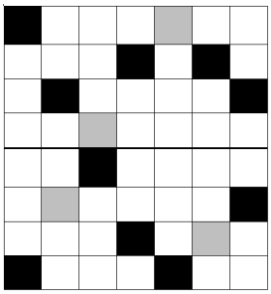
This marking scheme was used by WJEC for the 2023 examination. It was finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conference was held shortly after the paper was taken so that reference could be made to the full range of candidates' 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 1: Foundation Tier	Mark	Comments
1(a) 60 043	B1	Allow 60,043 and 60043 (no space between the 0s)
1(b) 7000 or 7 thousand(s)	B1	Accept thousand(s). Do not accept 1000.
1(c) 63	B1	
1(d) 406	B1	
1(e) 651	B1	
2. 	B2	B1 for all 4 correct squares and no more than 2 incorrect squares shaded OR B1 for 3 correct squares and no more than 1 incorrect square shaded OR B1 for 2 correct squares and no incorrect squares shaded
3.(a) 137°	B1	Accept answers in the range 135° to 139°.
3.(b) Perpendicular line drawn through C.	B1	Allow perpendicular line stopping at C. If two sections are drawn, both must lie within the given tolerance.
0·4.(a) 116	B1	
4.(b) 3 OR – 3	B1	B0 for 3 ×3
4.(c) $\frac{40}{100}$ × 120 or equivalent 48	M1 A1	Other possible methods for M1 include • 10% is 12 so 40% is 4×12 • 0·4×120 • 120×4/10. Allow M1 for sight of four 12s, either written in a column or row. M0 for 12 alone M1A0 for 48 followed by 72 or 168. SC1 for unsupported 72 or 168.
5.(a) 500g	B1	
5.(b) 7m	B1	

6. (Length of Rod A =) 5 cm AND (Length of Rod B =) 2 cm (3 x Rod A + 4 x Rod B =) 3 x 5 + 4 x 2 (= 15 cm + 8 cm) (Total length =) 23 (cm) or 230 (mm) ***Alternative measurements using inches (in)*** *Length of Rod A =) 2 in AND (Length of Rod B =) 0·8 in* *(3 x Rod A + 4 x Rod B =) 3 x 2 + 4 x 0·8 (= 6 inches + 3·2 inches)* *(Total length =) 9·2 (in)*	 B1 M2 A1 *B1* *M2* *A1*	Allow tolerance of +/- 2mm for every measurement throughout. Allow measurements throughout in mm. May be implied in further work FT 'their 5 cm' and 'their 2 cm'. Award M1 for sight of (3 x Rod A =) 3 x 5 OR (4 x Rod B =) 4 x 2 A0 for 230 cm or 23 mm. *Allow tolerance of +/- 0·1 in for every measurement throughout.* *May be implied in further work* *FT 'their 2 in' and 'their 0·9 in'.* *Award M1 for sight of* *(3 x Rod A =) 3 x 2 OR (4 x Rod B =) 4 x 0·8*
Organisation and Communication • Labels describing statements • Conclusion Accuracy in Writing • Clear calculations • Units in final answer • Correct mathematical form	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
7. Sight of 0·3 x 20 or equivalent 6	M1 A1	Award M1 only for 3/10 = 6/20 without a final answer of 6. Allow 3/10 of 20 for M1. If candidates calculate the number of apples, bananas and lemons, they must clearly indicate numbers of apples = 6. Allow 6 out of 20 for M1 A1
8.(a) (£) 15*m*	B1	Mark final answer Accept *m15, 15×m, m×15*
8.(b) 20 – *k* (oranges)	B1	Mark final answer
9. 2 rectangles 3 cm by 4 cm correctly placed 2 rectangles 5 cm by 4 cm correctly placed	B1 B1	

10. Correct plots of 3 or 4 of the points A, B, C, D AND no incorrect plots. Length = 8 (cm) AND Width = 6 (cm) (Perimeter = 2 × 8 + 2 × 6 or equivalent =) 28 (cm)	 B3 B1 B1	A correct and unambiguous length (8 cm) and width (6 cm) implies the first B3B1 B2 for either • three correct plots and one incorrect plot OR • two correct plots and no more than two incorrect plots B1 for either • one correct plot and no more than three incorrect plots OR • consistent use of reverse coordinates and no other plots The length (8 cm) AND width (6 cm) may be seen in either order. A correct and unambiguous length (8 cm) and width (6 cm) implies the first B3, if not previously awarded. FT from their plots only if a single rectangle has been formed or if three points are plotted and they form a right angle when joined. FT 2×'their 8' + 2×'their 6', provided previous B1 awarded. OR FT 2×'their stated 8' + 2×'their stated 6', provided a rectangle seen or implied
*<u>Alternative method **(if no plots shown)**</u> *(Length =) 3 – (– 5) OR 3 + 5* *= 8 (cm)* *(Width =) 4 – (– 2) OR 4 +2* *= 6 (cm)* *(Perimeter = 2 × 8 + 2 × 6 or equivalent =) 28 (cm)*	 *M1* *A1* *M1* *A1* *B1*	 *FT 2 × 'their 8' + 2 × 'their 6', provided at least one M1~~}~~ previously awarded*

11. Showing 40% and (9%) and 30% OR $\frac{40}{100}$ and $\frac{9}{100}$ and $\frac{30}{100}$ OR 0·4 and 0·09 and (0·3) OR three correct calculations for a common amount. 9% 0·3 $\frac{2}{5}$ in order	B2 B1	Award B2 for one of the following: • all correct % ($\frac{40}{100}$ or $\frac{30}{100}$ must be shown as 40% or 30%) • all correct fractions with a **common denominator** (could include decimals as numerators and denominators) • all correct decimals • correct work using a common amount • a valid combination that allows full comparison (e.g. 2/5 = 0·4 and 0·3 = 30%). Award B1 for one of the following: • one correct conversion (percentage or decimal) • two correct fractions with a common denominator • two correct calculations for a common amount. Allow any unambiguous indication (e.g. 'converted' values.) Correct answer with no incorrect conversions seen gains the final B1. If incorrect conversions seen, then **strict FT** of 'their work' only if B1 gained. Correct answer, with no other marks awarded, gains final B1 only.
12. Length = 20 (cm) Width = 4 (cm)	B2	Answer space takes precedence. Must be in the correct order for B2. Award B1 for one of the following as a final answer or final attempt: • length × width = 80 (e.g. length = 4 AND width = 20 or length = 16 AND width = 5) • 80 ÷ width = length e.g. 80 ÷ 5 = 16 or 80 ÷ 20 = 4 or 80 ÷ 10 = 8 • length = 5 × width e.g. length = 16 AND width = 3·2 or 3×5 = 15 If no answers are given on answer space: • Length = 20 (cm) and Width = 4 (cm) must be explicitly identified as a final answer for B2.
13.(a) $3x = 27$ (x =) 9	B1 B1	Mark final answer. FT from $3x = k$. Unsupported answer of 9 is awarded B1B1. $x = \frac{27}{3}$ is awarded B1B0. If FT leads to a whole number answer, it must be shown as a whole number. Otherwise accept a fraction (e.g. if $3x = 7$, then $x = \frac{7}{3}$ is awarded B0B1, but x = 7÷3 is awarded B0B0). Allow B1B1 for a correct embedded answer BUT B1B0 if contradicted by $x \neq 9$.

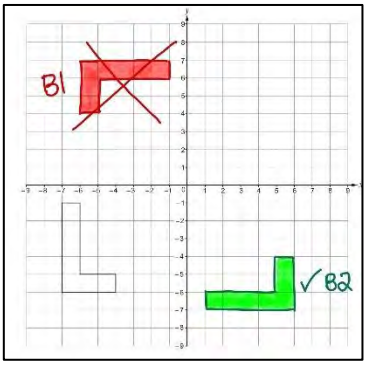
<table>
<tr><td>13.(b)
$8f - 13g$</td><td>B2</td><td>Mark final answer.
Must be an expression for B2.
Award B1 for one of the following:
• sight of $(+)8f$
• sight of $-13g$ (do not allow …..– $-13g$)
• $8f$ + – $13g$.</td></tr>
<tr><td>14.(a) 11 lb</td><td>B1</td><td></td></tr>
<tr><td>14.(b) 175 pints</td><td>B1</td><td></td></tr>
<tr><td>15.
$2(n - 7)$ or equivalent e.g. $2n - 14$.</td><td>B3</td><td>Answer space takes precedence.

For B3, accept as a final answer of:
• $2 \times (n - 7)$
• $(n - 7)2$
• $(n - 7) \times 2$.
Award B2 if incorrect subsequent working for one of the above.

Award B2 for sight of one of the following:
<table><tr><th>missing brackets</th><th>error in Samir’s age</th></tr><tr><td>• $2 \times n - 7$
• $n - 7 \times 2$</td><td>• $2(n + 7)$
• $2 \times (n + 7)$
• $(n + 7)2$
• $(n + 7) \times 2$
• $2(7 - n)$
• $2 \times (7 - n)$
• $(7 - n)2$
• $(7 - n) \times 2$
• $2n + 14$
• $14 - 2n$</td></tr></table>
Award B1 for sight of one of the following:
• $n - 7$
• $2 \times n + 7$
• $n + 7 \times 2$
• $2 \times 7 - n$
• $7 - n \times 2$
• $2n - 7$
• $n - 14$
• $n - 72$.

Allow use a different letter for n.</td></tr>
<tr><td>16.(a) 28</td><td>B1</td><td>Allow B1 for a correct embedded answer
(e.g. 28 ÷ 4 = 7 BUT B0 if contradicted by total ≠ 28).
Allow the sequence 7,14,21,28 for B1, but only if no further numbers are shown.</td></tr>
</table>

16.(b) Four numbers (in any order) with a total of 28 and range of 6 e.g. **3 7 9 9** **3 8 8 9** **4 7 7 10** **4 6 8 10** **4 5 9 10** **4 4 10 10** **5 5 7 11** **5 6 6 11**	B2	Numbers may be seen in any order. Accept answers using fractions and decimals. FT 'their total' from 16(a). Award B1 for **four** numbers with one of the following: • total = 28 • total = 'their total' from 16(a) • range = 6.
17. a = 63(°) b = 117(°) c = 117(°)	 B1 B1 B1	Answer line takes precedence. Check diagram for answers if no answers written on answer lines. FT 'their b'.
18. Identifying 12 possible combinations Identifying the 3 correct combinations that give a score of 6 or more (**2** and **4**, **3** and **3**, **3** and **4**) (Probability of '6 or more' =) $\frac{3}{12}$ or equivalent ISW (but note comment for M1 below) (Number of winning scores =) $\frac{3}{12}$ × 60 or equivalent = 15	B1 B1 B1 M1 A1	Award B1 for convincing identification of the 12 combinations, for example: • simply stating 12 • (3 × 4 =) 12 • showing all combinations 1+1, 1+2, etc. • all 12 'totals' • (2,3,3,4,4,4,5,5,5,6,6,7) shown with no extras • completed sample space drawn (3 by 4). **<u>Strict FT</u>** only if a list of all possible scores previously stated. A fraction with a denominator of 12 implies the first B1. Unsupported $\frac{3}{12}$ or equivalent implies previous B1B1. Probability may be implied in later working (e.g. 60 ÷ 12 = 5, 5 × 3 = 15). FT if a clear numerator and denominator can be identified from previous work. e.g. Possible scores 2, 3, 4 ,5, 6, 7 (B0) 2 scores of 6 or more (B1 FT) Probability = $\frac{2}{6}$ (B1 FT) FT 'their $\frac{3}{12}$' If 'their $\frac{3}{12}$' incorrectly simplified and used then award B0 previously. Must not come from incorrect working. Award M1 A0 for a final answer of ($\frac{3}{12}$ =) $\frac{15}{60}$ Note: using 'a winning score of 6' instead of 'a winning score of 6 or more' can be awarded a maximum of B1B0B1M1A1.

19.(a)	$\frac{48}{400}$ (× 100) or equivalent = 12(%)	M1 A1	M1 for sight of 0·12. Note: other complete valid methods to look out for include: • 48 ÷ 4 • 10% + 1% + 1% (= 40 + 4 + 4) • (48 out of 400 =) 12 out of 100 = 12(%)
19.(b)	Use of $\frac{45}{9}$ or equivalent (£)40 AND (£)5	M1 A1	Sight of an appropriate 5 (or 40) implies M1. Accept in either order.
19.(c)	(1 −) $\frac{1}{8}$ = $\frac{7}{8}$	B1 B1	Award B1 for sight of $\frac{1}{8}$ or 0·125 or 1 ÷ 8. FT from 1 – $\frac{m}{n}$ where $\frac{m}{n}$ clearly shown as 'their $\frac{1}{8}$' provided it is written as a fraction and not $\frac{1}{2}$ Mark final answer. A final answer of 0·875 is awarded B1B0.
19(c)	*Alternative method* $\frac{8-1}{8}$ or $\frac{2^3-1}{2^3}$ = $\frac{7}{8}$	*B1* *B1*	*For consistent correct use of $2^3 = 8$* *FT for 'their consistent value of 2^3'* *e.g. $\frac{6-1}{6}$ = $\frac{5}{6}$ gains B0B1.* *Mark final answer.* *A final answer of 0·875 is awarded B1B0.*
20.		B2	Award B2 for the correct rotation drawn with no other shapes drawn on the grid. Award B1 for a 90° correct clockwise rotation with either: • no other shapes drawn on the grid • the correct rotation (no others).