GCSE MARKING SCHEME

AUTUMN 2023

GCSE
MATHEMATICS
UNIT 1 – FOUNDATION TIER
3300U10-1

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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.

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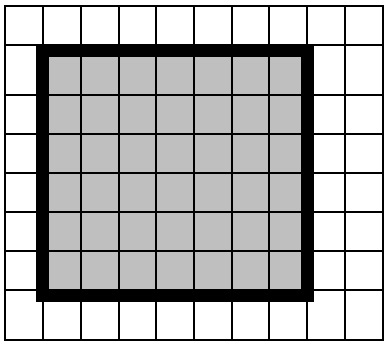
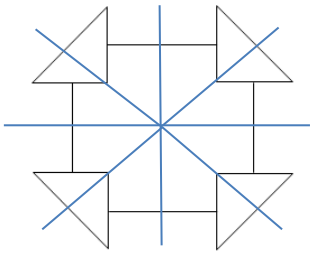
WJEC GCSE MATHEMATICS

AUTUMN 2023 MARKING SCHEME

GCSE Mathematics **Unit 1: Foundation Tier**	**Mark**	**Comments**
1.(a) 6·4 (cm)	B1	Accept 6·2 (cm) to 6·6 (cm)
1.(b) 53 (°)	B1	Accept 51 (°) to 55 (°)
2.(a) 106 000	B2	B1 for one of the following: • sight of 53000 • one hundred and six thousand • correctly doubling 'their 53 000' if it is first written in figures, provided 'their 53 000' is at least four figures and starts with the digits 5 and 3 (i.e. a place value error). • 106 followed by a minimum of two zeros
2.(b) 3600	B1	
2.(c) 42	B1	
2.(d) 1000 OR 980 OR 1030	B2	B1 for 100 × 10 OR 100 × 9·8 OR 103 × 10
2.(e) No, with appropriate working e.g. • (626 ÷ 3 =) 208 r.2 • (626 ÷ 3 =) 208·6(6…) • 6 + 2 + 6 = 14 AND 14 is not a multiple of 3 • 3 × 208 = 624 AND 3 × 209 = 627	B1	Allow No with 208·2 Arithmetic seen must be correct and show a remainder of 2 or first decimal place.
3.(a) unlikely	B1	
3.(b) impossible	B1	
4. 	B2	B1 for any one of the following: • a rectangle with length = 7 • a rectangle with width = 6 • drawing pattern 4 i.e. length = 6 AND width = 5 • drawing pattern 6 i.e. length = 8 AND width = 7 • drawing the correct pattern in the wrong orientation
5.(a) 	B2	B1 for either: • 3 or 4 correct lines and no more than1 incorrect line • 2 correct lines and 0 incorrect lines
5.(b) 5	B1	

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6.(a) (6,4)	B1	
6.(b)(i) D plotted at (– 7, – 5)	P1	
6.(b)(ii) (– 7, – 5)	B1	FT 'their D' provided both coordinates are negative
7.(a)(i) (p =) 12	B1	Allow B1 for a correct embedded answer BUT B0 if contradicted by $p \neq 12$.
7.(a)(ii) (n =) 14	B1	Allow B1 for a correct embedded answer BUT B0 if contradicted by $n \neq 14$.
7.(b) 2480 (cm)	B1	
8. 180 (°) – 147 (°) (x =) 33 (°)	M1 A1	Allow M1A1 for a correct embedded answer BUT M1A0 if contradicted by $x \neq 33$.
9. (Shorter length = 8 – 6 =) 2 (cm) (Perimeter of whole shape =) 2×(5 + 8 + 5 + 2) 40 (cm)	B1 M1 A1	May be seen on the diagram Or equivalent FT 'their stated or derived 2'
Alternative method *(Perimeter of one rectangle = 8+5+8+5 =) 26 (cm)* *(Perimeter of whole shape =) 2×26 - 2×6* *40 (cm)*	*B1* *M1* *A1*	*May be seen in later workings* *Or equivalent* *FT 'their 26'*
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

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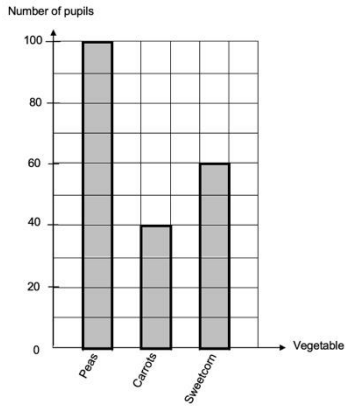
10. Correctly drawn bar chart.  	B3	Bar widths can be one or two squares and must be consistent. B2 for one of the following: • sight of the three values Peas 100 Carrots 40 Sweetcorn 60 • two correct values with correctly drawn graph for their values • one correct value and the sum of the three values being 200 with correctly drawn graph for their values • Correctly drawn bar heights with unequal bar widths B1 for unambiguous sight of one or two values, or one correct bar height. SC1 for bars of equal width and of height 50, 20, 30 correctly drawn if 0 marks awarded.
11.(a) –2	B2	Mark final answer. Award B2 for unsupported –2 provided not from incorrect working. Award B1 for one of the following: • sight of –20 (not $-20x$) • sight of (+)18 (not $18y$ and not –18) • –2 (with additional letters) • a final answer of 38 or –38 (18 or –20 implied).
11.(b) $2y-3m$	B2	Mark final answer. Must be an expression for B2. Award B1 for one of the following: • sight of (+)$2y$ • sight of $-3m$ (do not allow …– $-3m$) • $2y+-3m$.

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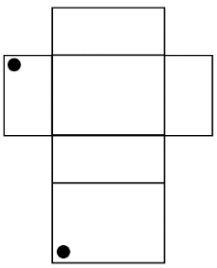
12. Showing 41% and 35% and (45%) OR $\frac{41}{100}$ and $\frac{35}{100}$ and $\frac{45}{100}$ OR (0·41) and 0·35 and 0·45 OR three correct calculations for a common amount. 45% 0·41 $\frac{7}{20}$ in order	B2 B1	Award B2 for one of the following: • all correct % ($\frac{41}{100}$ and $\frac{35}{100}$ must be shown as 41% or 35%) • 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. $\frac{7}{20}$ = 0·35 and 0·41 = 41%). 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.) If first B1 awarded then allow a **strict FT** of 'their work' for a possible final B1. If first B0 awarded, then award the final B1 for a correct final answer, only if: • no incorrect conversions seen (e.g just 45/100 given), OR • an unsupported correct final answer seen.
13.(a) 	B2	Accept any indication. Award B1 for one of the following: • one correct dot with no more than one incorrect dot shown • two correct dots with one incorrect dot shown.
13.(b) $3 \times 5 \times p = 90$ or $90 \div (3 \times 5)$ or equivalent ($p =$) 6	M1 A1	M1 for complete method. Allow M1A1 for a correct embedded answer (e.g. $3 \times 5 \times 6 = 90$), BUT M1A0 if contradicted by $p \neq 6$). Unsupported 6 is awarded M1A1.

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14.(a) 9·17 ÷ 7 × 3 or equivalent 3·93 (km) 3930 (m)	 M1 A1 B1	Answer space takes precendence. May be seen in stages. FT 'their 3·93' × 1000.
14.(a) Alternative method (converting to m first) *9170 (m)* *9170 ÷ 7 × 3 or equivalent* *3930 (m)*	 *B1* *M1* *A1*	*Answer space takes precedence.* *FT 'their 9170' ÷ 7× 3 provided that the digits 917 are seen (i.e place value error).*
14.(b) $\frac{25}{2 \times 60 + 5}$ (× 100%) or equivalent = 20 (%)	M2 A1	Allow 0·2 or $\frac{1}{125 \div 25}$ or $\frac{1}{5}$ to imply M2. Award M1 for an attempt at $\frac{25}{2\ hours\ 5\ minutes}$ but with incorrect denominator (e.g. 2·5, 2·05, 2 hours 5 minutes stated incorrectly with 2 × 60 + 5 not shown). CAO Mark final answer. If no marks awarded, award SC1 for sight of 125 (minutes).
14(b). Alternative Method *125 minutes = (100%)* *12·5 minutes = 10%* *25 minutes = 20%*	 *B1* *M1* *A1*	 *CAO* *Mark final answer.*
15.(a) 36	B1	Allow B1 for a correct embedded answer (e.g. 36 ÷ 4 = 9 BUT B0 if contradicted by total ≠ 36). Allow the sequence 9, 18, 27, 36 for B1, but only if no further numbers are shown.
15.(b) **Four** numbers including 11, 11 AND a pair of non-identical numbers whose sum is 14 **1 13 11 11** **2 12 11 11** **3 11 11 11** **4 10 11 11** **5 9 11 11** **6 8 11 11**	B2	Numbers may be seen in any order. Accept answers using fractions, decimals or negative numbers. FT 11, 11 AND two numbers whose sum is 'their total' from (a) – 22 for a possible B2 or B1. Award B1 for **four** numbers with one of the following: • total = 36 • total = 'their total' from 5(a) • four numbers with a unique mode of 11 (11, 11, ?, ? or 11, 11, 11, ? or 11, 11, 11, 11) • 7, 7, 11, 11.
16.(a) 1 − 0·3 − 0·1 − 0·25 or equivalent = 0·35 or equivalent	 M1 A1	The value in the table takes precedence. Award M1 for complete method.
16.(b) 24	B2	Award B2 for a final answer of 24 : 20 or 20 : 24. Award B1 for one of the following: • 20 ÷ 0·25 × 0·3 • 80 – (8 + 28 + 20) • 25% → 20 5% → 4 30% → 20 + 4 • 0·3 × 80 or 20 × 1·2 or … • sight of 80 • other complete method • unsupported 24 as a numerator in a fraction <1.

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17. (length of small shaded square =) $\sqrt{16}$ or equivalent **OR** (length of large shaded square =) $\sqrt{144}$ or equivalent (length of small shaded square =) 4 (cm) (length of large shaded square =) 12 (cm) (total area of unshaded regions =) 96 (cm^2)	 M1 A1 A1 B2	Check diagram for answers. Allow $16 \div 4 = 4$. Sight of 4 or 12 implies M1. FT 'their derived 4' × 'their derived 12' × 2 Award B1 for one of the following: • sight of 48 (cm^2) • 4×12 • 'their derived 4' × 'their derived 12'.
17. Alternative Method (find total area of square) *(length of small shaded square =) $\sqrt{16}$ or equivalent* ***OR*** *(length of large shaded square =) $\sqrt{144}$ or equivalent* *(length of small shaded square =) 4 (cm)* *(length of large shaded square =) 12 (cm)* *(total area of unshaded regions =)$(4+12)^2 - 16 - 144$* *96 (cm^2)*	 *M1* *A1* *A1* *M1* *A1*	*Check diagram for answers.* Allow $16 \div 4 = 4$ *Sight of 4 or 12 implies M1.* *Note: 256 - 160* *Award M1 for complete method.* *FT ('their derived 4' + 'their derived 12')^2 – 16 – 144*
18. $7y - 2 = 4y + 1 + 9$ or $7y - 2 = 4y + 10$ $7y - 4y = 10 + 2$ $3y = 12$ $y = 4$	 B1 B1 B1 B1	FT until 2nd error. Allow $7y - 2 - \mathbf{9} = 4y + 1$ or $7y - 11 = 4y + 1$ Allow $7y - 4y = 1 + 11$. Mark final answer. If FT leads to a whole number answer, it must be shown as a whole number. Otherwise accept a fraction. An embedded, unsupported answer or an answer following trial and improvement of 4 without showing $7y - 2 = 4y + 1 + 9$ or equivalent gains B1 only. Note: $7y - 2 + \mathbf{9} = 4y + 1$ B0 $7y - 4y = 1 - 7$ B1 $3y = -6$ B1 $y = -2$ B1 $7y - 2 = 4y + 1 - \mathbf{9}$ B0 $7y - 4y = -8 + 2$ B1 $3y = -6$ B1 $y = -2$ B1 $7y - 2 = 4y + 1$ B0 $7y - 4y = 1 + 2$ B1 $3y = 3$ B1 $y = 1$ B1 If $3y = -6$ or $3y = 3$ seen with no previous workings, award B0 B1 B1 with a possible final B1 if correct answer seen. **If no marks awarded**, award SC1 for sight of the following: • $7y + 7 = 4y + 1$ (adding 9 on the wrong side) • $4y + 10$ • $7y - 11$ (from correct working).

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