GCSE MARKING SCHEME

SUMMER 2023

GCSE
MATHEMATICS – NUMERACY
UNIT 1 – FOUNDATION TIER
3310U10-1

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.

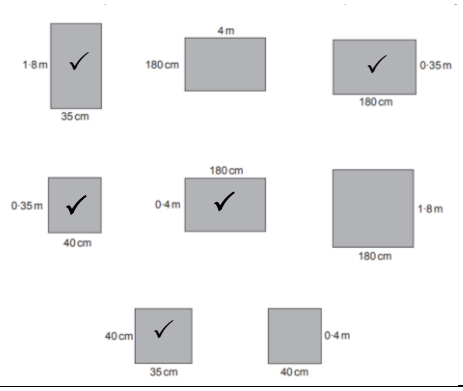
WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

WJEC GCSE MATHEMATICS - NUMERACY

SUMMER 2023 MARK SCHEME

Unit 1: Foundation Tier	Mark	Comments
1(a) one million (and) three hundred thousand	B1	Allow: • 1 million (and) three hundred thousand • one million (and) 3 hundred thousand • 1 million (and) 3 hundred thousand • One point three million
1(b)(2023 – 1999=) 24	B1	Answer space takes precedence
1(c)(i) 73 900	B1	
1(c)(ii) 12000 (cm)	B1	Answer space takes precedence
1(c)(iii) 90 × 60 5400 (litres)	M1 A1	
1(c)(iv) **No** indicated and an appropriate correct calculation that involves: • Converting 15 miles to 24 km • Converting 18km to 11(.25) miles • Converting 10 miles to 16km and comparing this with 18km Eg '15 miles is 24 km' '5 × 3 = 15 and 8 × 3 = 24' '18 km is only (18 × 5 ÷ 8 =) 11(.25) miles' 18 × 5 ÷ 8 = 11(.25) '10 miles is 16 km so 18 km is only a little more than 10 miles' '16 km is 10 miles so 18 km is 10 miles and 2 km'	E2	Award E1 for: • **Yes, or a box not indicated/implied**, **and** a correct calculation (see LHS) • **No** indicated and a **correct method** without a full answer • **No** indicated and a **correct method** with an incorrect answer • **No** indicated and have compared 10 miles with 16km only eg No indicated with • 18 × 5 ÷ 8 • 15 ÷ 5 × 8 • 3 × 8 • '8 + 8 = 16 (km) and 5 + 5 = 10 (miles)' • 10 miles = 16km Award E0 for **only** 10 miles **or** 16km stated

2(a)(i) (Price for 40 boxes is 40 × 5 =) (£)200	B1	
(Discount is 200 ÷ 4 =) (£)50	B1	FT 'their 40 × 5' ÷ 4 This may be seen or implied in final answer
(Mr Evans paid 200 – 50 =) (£)150	B1	FT 'their 200' – 'their 50' Award B0 for an answer of 175(%) from 200 – 25(%) unless 25 has been derived as 'their 50'.
2(a)(i) <u>Alternative method 1</u> *(Price for 40 boxes is 40 × 5 =) (£)200*	*B1*	
(Mr Evans paid) 0.75 × 40 × 5 or equivalent	*M1*	*FT 'their 40 × 5'*
(£)150	*A1*	
2(a)(i) <u>Alternative method 2</u> *(Cost of 1 discounted box ¾ × 5 =)* *(£)15/4 or (£)3.75*	*B1*	
(Cost of 40 boxes =) *40 × (£)15/4 or 40 × (£)3.75*	*M1*	*FT 40 × 'their 15/4' or 40 × 'their 3.75'*
(£)150	*A1*	
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 explanations and working in a way that is clear and logical • write a conclusion that draws together their results and explains what their answer means
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.
2(a)(ii) (Sells the 20 boxes for 20 × 8 =) (£)160	B1	
Sells the special offer boxes for (40 – 20) ÷ 2 × 13 or 20 × 13 ÷ 2 or equivalent	M1	Equivalent methods usually: 10 × 13 or 260 ÷ 2 or 20 × 6.5
(£)130	A1	
(Profit =) 160 + 130 – 150	M1	FT 'their 20 × 8' + 'their 130' – 'their 150 from 2ai' provided 'their 130' ≤ 260
(=) (£)140	A1	If final M0 A0, then award SC1 for sight of (£)290 from 160 + 130 Note: use of 20 × 13 = 260 and then 160 + 260 – 150 = 270 gains B1M0A0M1A1

2(b) All 5 correct wooden panels identified with no incorrect ones.  	B3	Award B2 for: 5 panels correct and 1 incorrect OR 4 panels correct and 0 or 1 incorrect OR 3 panels correct and 0 incorrect Award B1 for: 5 or 4 panels correct and 2 incorrect OR 3 panels correct and 1 or 2 incorrect OR 2 panels correct and 0 incorrect
2(c) (Area of flower) Evidence of counting squares within the shape 39 – 47 (squares) 156 – 188 (cm^2)	M1 A1 B1	Allow M1 for area within and some of the squares outside Award M0 if clearly working with perimeter Number of squares in range with no evidence of counting award M1 A1 FT 'their number of squares' × 4 correctly evaluated
2(c) <u>Alternative method</u> *(Area of flower) Evidence of counting squares within the shape **and** counting up in 4s* *156 – 188 (cm^2)*	*M2* *A1*	*If no evidence of counting squares, award M1 for evidence **of counting up in 4s** to at least 40*
3(a) August **and** 2018	B1	Allow 2018 and August Allow August with 18 used to represent 2018
3(b) 165 364 – 147 521 = 17 843 **and** 18 000	M1 A1	Allow 147 521 – 165 364 as evidence of subtraction Allow 165 – 147 as evidence of subtraction for M1 Allow adding on methods eg: 479 +17364 OR 2479 + 15364 OR equivalent If no marks, award SC1 for: • an **answer of 17000** seen from 165000 – 148000 • answer of 18000 with no workings shown
3(c) July and August	B2	Award B1 for each. Accept in any order.
3(d) Table set up with rows or columns: • Places - with all 4 places listed correctly • Tallies - Labelled with 'tallies' or 'number of tallies' • Frequency - Labelled with 'frequency' or equivalent as a heading	 B1 B1 B1	Do not award any marks if only a bar chart, graph or axes seen. Accept other places also listed and/or use of "other". Accept abbreviations. Allow tallies drawn. Do not accept title of row or column as: • number of people unless tallies shown • number of most popular (place) unless tallies shown Accept 'total' or 'number of people' or 'vote' for frequency. Do not accept number of most popular (place) for this column or row.

4. Method of comparison, e.g. per 10 ml or for 600 ml, or divide the cost of 30 ml by 3 and multiply by 4 or 5, or similar Correctly evaluated comparison of 2 of the 3 sizes Correctly evaluated comparison of all 3 sizes, may be different comparisons at different stages, AND conclusion 'Medium' or '40 ml' bottle is the best value for money	M1 A1 A1	Needs to show attempt to compare at least 2 of the 3 sizes Ignore incorrect units With a 1 ml comparison, allow truncation to 4p for large and 3p for medium, provided no incorrect working is seen, for the award of the first A1. Award of final A1 also possible if a full comparison and conclusion is 'Medium' Consistent units that are not obviously incorrect are required, or allow no units given Comparison of small / medium and medium / large **IS** a full comparison of all 3 sizes Comparison of small / medium and small / large **IS** a full comparison of all 3 sizes Comparison of medium / large and small / large **IS NOT** a full comparison of all 3 sizes
5(a) 4	B1	Accept '×4', 'times 4' or '11 × 4 = 44' Do not accept a choice, e.g. '33% and 4 times'
5(b) 17/50	B1	CAO. Do not accept 34/100 or 17%/50%
5(c) 'Accomplishments'	B1	Allow 'Accomplishments 49%' Do not accept 49(%)
5(d) Appropriate explanation, e.g. '(would have) needed to know the number of boys and girls in family category and total number of boys and the total of girls', '(would have) needed to know the gender (or sex) of each of the teenagers'	E1	Ignore additional incorrect or spurious statements Allow, e.g. 'split (the original data) into boys and girls', 'do another survey asking boys and girls separately', 'sex', 'gender' 'boys and girls on separate graphs', 'boys and girls' 'how many boys and girls took part in the survey', 'need number of girls and boys who took part in the survey', 'need number of boys and girls for family', 'need percentage of girls and percentage of boys' Do not accept, e.g. 'repeat the survey', 'more detailed data'
5(e) 743 × 11/100 or 74.3 + 7.43 or equivalent 81 or 82 (teenagers)	M1 A2	Only award A2 provided not from incorrect working Award A1 for any of the following: • final answer 81.7(3) • working leading to 81.(….) truncated or rounded to give a final answer of 81 or 82 • 'their 81.7(3)' rounded or truncated to a whole number If no marks, award SC3 for a whole number answer in the range 79 to 85 (teenagers) from any of trials 100 × 79 ÷ 743 (= 10.6…), 100 × 80 ÷ 743 (=10.76…), …, 100 × 85 ÷ 743 (= 11.4…)

<table>
<tr><td>5(f) Suitable reason, e.g.
‘teenagers can select more than one type of information’,
‘some teenagers are represented by more than one row’</td><td>E1</td><td>Do not accept, e.g.
‘they have been rounded’,
‘because the data is grouped’</td></tr>
<tr><td>6(a)(i) 50 (baths)</td><td>B1</td><td>Do not accept 50/80</td></tr>
<tr><td>6(a)(ii) All appropriate products given, i.e.
• (Bath, Taps)
(10 + 40) × 180 AND (40 + 30) × 60
(=9000 AND 4200)

• (Bath, Bath & tap, Tap)
10 × 180 AND 40 × (180 + 60) AND 30 × 60
(=1800 AND 9600 AND 1800)

• (Bath, Split bath & tap, Tap)
10 × 180 AND 40×180 AND 40×60 AND 30×60
(= 1800 AND 7200 AND 2400 AND 1800)

(£) 13200</td><td>M2

A1</td><td><u>FT from either an error in evaluating ‘10 + 40’ or for 40 < ‘their 50’ < 60 in (a)(i)</u>
Allow intention if brackets are missing (for M2 or M1)
Intention to ‘add’ is not required
If additional working is seen, there needs to be clear indication of which are the appropriate products

M1 for any one of the following partial method, ignore any additional inappropriate products:
<table><tr><td>Baths</td><td>(10 + 40) × 180</td><td>£9000</td></tr><tr><td>Taps</td><td>(40 + 30) × 60</td><td>£4200</td></tr><tr><td>Bath only and tap only</td><td>10 × 180 and 30 × 60</td><td>£1800 and £1800</td></tr><tr><td>Bath with tap</td><td>40 × (180 + 60)</td><td>£9600</td></tr><tr><td>Bath with tap</td><td>40 × 180 and 40 × 60</td><td>£7200 and £2400</td></tr></table>
CAO, not from FT from (a)(i)</td></tr>
<tr><td>6(b)(i) 5 (couplings)</td><td>B1</td><td></td></tr>
<tr><td>6(b)(ii) C = P - 1</td><td>B1</td><td></td></tr>
<tr><td>7. Width 5 (cm) seen or implied

Correct method to calculate the area of initial, e.g.
• 10 × 5 – (10 – 2) × (5 – 2)
• 10 × 2 + (5 – 2) × 2
• 5 × 2 + (10 – 2) × 2
• 8 × 2 + 3 × 2 + 2 × 2

(26) × (0.)50 ÷ 2 or (26) × (0.)25 or equivalent

(£)6.5(0) or 650(p)</td><td>B1

M1

M1

A2</td><td>E.g. may be implied by the sight of the appropriate use of 5 in an area calculation

FT ‘their width’ provided 2 < ‘their width’ < 10
Allow M1 if given as 2 or 3 separate areas provided sight of intention that it is the total area. Any subtraction of areas must be indicated

FT ‘their derived area’ provided not 2, 10 or 5, but including partial or full perimeter

CAO. For A2, if units are given they must be correct

If M2 or M1 previously awarded, A1 for any one of the following:
• Total area 26 (cm^2)
• Total cost for ‘their derived area’
• The sum or difference of ‘their costs’ would be a correct FT for ‘their areas’. Any subtraction of costs needs to be indicated</td></tr>
</table>

8(a) A statement regarding e.g. Q1: 'not relevant', 'irrelevant' 'confidentiality', 'too personal', 'inappropriate question', 'it isn't about where you live', 'no reason for the question'	E1	For any one equivalent statement. Ignore additional comments. Do not accept, e.g. 'no option boxes given', 'too open ended', 'no space to answer', 'not a clearly defined question', 'some people walk faster than others', 'doesn't have an answer for more than 5 minutes away', 'it doesn't make sense', 'many children do not know how far they live from school', 'they may not walk to school'
Q2: 'times not exclusive', 'overlapping boxes' 'no period of time given', '5 times in 2 boxes', 'doesn't say if it is in a week', 'it is vague as it doesn't say in a month', 'how many times a month or a week?,' 'should have put 6-10 times a week',	E1	For any **one** of these, or equivalent statement. Ignore additional comments. Do not accept, e.g. 'bias', 'not enough boxes to tick', 'not enough options', 'too vague' (unless a reason given), 'not specific' (unless a reason given), 'too broad' (unless a reason given), 'might not like board games', 'this isn't suitable because it has nothing to do with teachers', 'have other options' *SC1 if both correct but in reverse order.*
8(b) A criticism regarding • location (in the supermarket) • poor distribution method • does not target primary school children	E1	For any **one** of these, or equivalent statement. Ignore additional comments. Accept, e.g. 'may not be seen in the supermarket', 'wasn't asked verbally', 'should have been handed out', 'no guarantee anyone would answer them', 'won't know if a primary school child had filled it out', 'primary school children unlikely to be in a supermarket', 'children may not see it', 'supermarket targets adults', 'some may not go to supermarket as they shop online', 'supermarket is not the best place to fill a questionnaire', 'should be done in school', 'anyone could answer it not just primary school children' Do not accept, e.g. 'some children don't play board games', 'children play computer games', 'it would worry people who don't play board games'
9(a)(i) 11 (:00 am)	B1	Allow 11(:00 am) – 12(:)30 or 11(:00 am) to 12(:)30 Do not accept 11(:)00 pm or an incorrect time period for the first stop
9(a)(ii) 08:00 and 08:30	B1	

9(a)(iii) 15 km	B1	
9(b) 300°	B1	
10(a) Width 3.9 cm AND Lengths 17.7 cm and 18.5 cm	B2	Accept lengths given in either order, 17.7 cm and 18.5 cm or 18.5 cm and 17.7 cm B1 for any 2 correct measurements
10(b) (Strong) negative (correlation)	B1	CAO
10(c) Suitable line of best fit drawn	B1	The straight line (accept intention if a ruler is not used) must have points above and below it, generally this is 3 above and 4 below The line must be of sufficient length, to illustrate trend for at least 5 points The trend shows that there are points above and below the line at each end of the line Allow, e.g. the line of best fit following the '**trend**' • from top left corner provided 3 points are above the line • with 2 points above the line, one point 'on' the line and 4 points below the line • with 3 points above the line, 2 'on' the line and 2 points below the line Do not accept, e.g. • a line from the bottom right corner • with 3 points above the line and 3 or 4 points 'on' the line • from top corner with 4 points 'on' the line • a line joining the first point to the last point • a 'corner to corner' line • line NOT drawn to follow the clear 'trend' • joining 'point to point' • a line of insufficient length, trend only shown for fewer than 5 points Note: 'on' the line includes a point just touching the line, no gap between the point and the line