GCSE MARKING SCHEME

SUMMER 2024

GCSE
MATHEMATICS – NUMERACY
UNIT 1 – INTERMEDIATE TIER
3310U30-1

About this marking scheme

The purpose of this marking scheme is to provide teachers, learners, and other interested parties, with an understanding of the assessment criteria used to assess this specific assessment.

This marking scheme reflects the criteria by which this assessment was marked in a live series and was finalised following detailed discussion at an examiners' conference. A team of qualified examiners were trained specifically in the application of this marking scheme. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners. It may not be possible, or appropriate, to capture every variation that a candidate may present in their responses within this marking scheme. However, during the training conference, examiners were guided in using their professional judgement to credit alternative valid responses as instructed by the document, and through reviewing exemplar responses.

Without the benefit of participation in the examiners' conference, teachers, learners and other users, may have different views on certain matters of detail or interpretation. Therefore, it is strongly recommended that this marking scheme is used alongside other guidance, such as published exemplar materials or Guidance for Teaching. This marking scheme is final and will not be changed, unless in the event that a clear error is identified, as it reflects the criteria used to assess candidate responses during the live series.

WJEC GCSE MATHEMATICS - NUMERACY

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<table>
<tr><th>Unit 1: Intermediate Tier</th><th>Mark</th><th>Comments</th></tr>
<tr><td>1(a) Method to compare the same number of toothbrushes, e.g. for 1, 5, 6, 15, 30 or 60 toothbrushes
• (1) 1(.)44 ÷ 3 AND 2(.)25 ÷ 5
• (3) (1(.)44 AND) 3 × 2(.)25 ÷ 5
• (5) 2 × 1(.)44 – 1(.)44 ÷ 3 (AND 2(.)25))
• (5) 5 × 1(.)44 ÷ 3 (AND 2(.)25))
• (6) 2 × 1(.)44 AND 2(.)25 ÷ 5 + 2(.)25
• (15) 5 × 1(.)44 AND 3 × 2(.)25
• (30) 10 × 1(.)44 AND 6 × 2(.)25
• (60) 20 × 1(.)44 AND 12 × 2(.)25

An accurate calculation for a 3 pack OR a 5 pack, e.g. 48(p) or 45(p), (£)7.20 or (£)6.75

Cost of same number of toothbrushes for 3 pack AND 5 pack WITH conclusion pack of 5 is better value for money</td><td>M1

A1

A1</td><td>In £s:
<table><tr><td></td><td>1</td><td>3</td><td>5</td><td>6</td><td>15</td><td>30</td><td>60</td></tr><tr><td>3pk</td><td>0.48</td><td>(1.44)</td><td>2.40</td><td>2.88</td><td>7.20</td><td>14.40</td><td>28.80</td></tr><tr><td>5pk</td><td>0.45</td><td>1.35</td><td>(2.25)</td><td>2.70</td><td>6.75</td><td>13.50</td><td>27.00</td></tr></table>

If units are given, they must be correct
Ignore any subsequent working, unless it adversely impacts on the conclusion</td></tr>
<tr><td>1(b) (100 ml for) 93 × 4 ÷ 3
or 93 ÷ 3 + 93
or 93 × 20 ÷ 15
or 93 × 100 ÷ 75
or equivalent

(£)1.24 or 124(p)</td><td>M2

A1</td><td>M1 for any one of the following:
• (25 ml for) 93 ÷ 3 (= 31p)
• (5 ml for) 93 ÷ 15 (= 6.2p)
• (1 ml for) 93 ÷ 75 (= 1.24p)

If units are given, they must be correct</td></tr>
<tr><td>2(a) 15(:)00 or 3 p.m.</td><td>B1</td><td>Allow 15(:)00 pm, 3(:00) or 3 o’clock
Do not accept 15(:)00 am, 3 a.m, 03:00 (p.m)</td></tr>
<tr><td>2(b) 14 (km)</td><td>B1</td><td></td></tr>
<tr><td>2(c) 12:00 to 12:30</td><td>B1</td><td></td></tr>
<tr><td>3(a) 2000 + 0.35 × 2000 or 2000 + 700
or 1.35 × 2000 or equivalent
2700 (bottles)

2700 – 0.21 × 2700 or 2700 – 567
or 0.79 × 2700 or equivalent
2133 (bottles)</td><td>M1

A1

M1

A1</td><td>

May be implied in further correct working

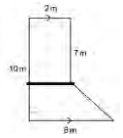
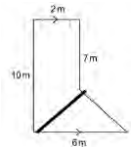
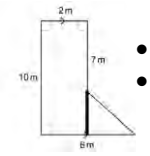
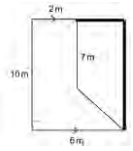
FT ‘their derived 2700’ provided ≠ 2000

Note: If a percentage is calculated by addition of a sum of percentages, accurate percentage parts need to be given with the intention to add the appropriate parts before an M mark can be awarded, e.g.
attempt 2700 – 21% of 2700 as:
‘1% 27’, ‘10% 270’ with 2700 – (27+270+270) M1
‘1% 2.7’, ‘10% 270’ with 2700 – (2.7+270+270) M0
‘1% 27’, ‘10% 270’ with 2700 – (27+270) M0</td></tr>
</table>

Unit 1: Intermediate Tier	Mark	Comments
3(b) (Tax on first 15000 euros) 0.2(0) × 15000 (Tax on remaining income) 0.3(0) × (26000 – 15000) (Total income tax) 6300 (euros)	 M1 M2 A2	Ignore £ written for euros (= 3000 euros) (= 3300 euros) M1 for (Remaining income to be taxed) 26000 – 15000 (= 11000 euros) Ignore any further working (such as to calculate income – income tax) A1 for either part of the tax correctly evaluated, i.e. (0.2(0) × 15000 =) 3000 (euros) or (0.3(0) × (26000 – 15000) =) 3300 (euros)
4(a)(i) $\frac{1}{3} \times 7200 \times \frac{90}{360}$ or $\frac{1}{3} \times 7200 \div 4$ or $2400 \div 4$ or $\frac{1}{3} \times 1800$ 600 (Irish females)	M2 A1	M1 for any one of the following: • $7200 \times \frac{90}{360}$ (= 1800) • $7200 \div 4$ (= 1800) • (7200 ÷ 3 =) 2400 CAO
4(a)(ii) (Number of adult Welsh spectators) $7200 \times \frac{110}{360} \times 6 \div (6 + 5)$ 1200	M2 A2	M1 for any one of the following: • $7200 \times \frac{110}{360}$ (=2200) • $7200 \times 6 \div (6 + 5)$ (=3927.2727….) • $110 \times 6 \div (6 + 5)$ (=60) • 'their number of Welsh spectators' × 6 ÷ (6 + 5) A1 for any one of the following <u>correctly evaluated</u>: • ($7200 \times \frac{110}{360}$ =) 2200 • (7200 ÷ 360 =) 20 **and** (110 × 6 ÷ 11 =) 60 • 'their $7200 \times \frac{110}{360}$ ' × 6 ÷ 11 • 'their 7200 × 6 ÷ 11' × $\frac{110}{360}$ • 'their 110 × 6 ÷ 11' × 20 • 'their number of Welsh spectators' × 6 ÷ 11

Unit 1: Intermediate Tier	Mark	Comments
4(b) (Total of all entrance fees is) (Cycling entrance fees £) 2000 × 25 + (Cycling and athletics entrance fees £) 4000 × 40 + (Athletics entrance fee £) 1200 × 30 (£) 246 000	M2 A1	For the sum of the three appropriate products *(50 000 +)* *(160 000 +)* *(36 000)* M1 for any one of the following: • at least two appropriate products • one appropriate product in a sum of 3 products CAO
Organisation and communication 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 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 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.

Unit 1: Intermediate Tier	Mark	Comments
5(a) 50 × 3 × 1.8(0) or 50 × 3 × 180 (£) 270 or 27000(p)	M2 A2	M1 for any of the following: • 50 × 3 • 50 × 1.8(0) • 50 × 180 • 3 × 1.8(0) • 3 × 180 For A2, if units are given, they must be correct, otherwise A1 for 270p or £27000 Ignoring units, A1 for any of the following: • (50 × 3 =) 150 • (50 × 1.8(0) =) 90 • (50 × 180 =) 9000 • (3 × 1.8(0) =) 5.4(0) • (3 × 180 =) 540
5(b)(i) (Mean of 8 temperatures is -56 ÷ 8 =) -7 (°C)	B3	Must not be from incorrect working, other than allowing from 56 ÷ 8 B2 for any one of the following: • -56 ÷ 8 • 56 ÷ 8 = 7 B1 for any one of the following: • (sum of temperatures) -56 • (sum of temperatures) 56 • sight of 'their sum of temperatures' ÷ 8, provided the summation is <u>not</u> from a sum involving all positive integers or all negative integers, with or without a negative sign inserted. If '÷ 8' is not seen, it may be implied from 'their sum' and 'their mean' (rounded or truncated)
5(b)(ii) (-56 + -16) ÷ 9 or -72 ÷ 9 -8 (°C)	M1 A1	FT 'their -56' from (b)(i) On FT allow a rounded or truncated answer Allow a correctly rounded or truncated answer, to 1d.p. for '('their -56' + -16) ÷ 9' to imply M1 A1
5(c)(i) 20 × (8.6 (± 0.2)) 172 (± 4 m)	M1 A1	Do not award from sight of an incorrect evaluation of 'their 8.6' × 20
5(c)(ii) 232° ± 2°	B1	

Unit 1: Intermediate Tier	Mark	Comments
6(a)(i) (£) 70	B2	B1 for any one of the following: • use of (£)2010 • use of (£)1940
6(a)(ii) Answer in the inclusive range (£)1700 to (£)1780	B1	Allow answers given as a range provided 'their range' is inclusively within the required range
6(b) (Total area of the driveway)	M2	
 • ½ × (10 – 7) × (2 + 6) + 2 × 7 • ½ × 3 × 8 + 2 × 7 (= 12 + 14)		M1 for one of the following appropriate areas: • ½ × (10 – 7) × (2 + 6) (= 12m² area of trapezium)
 • ½ × 2 × (7 + 10) + ½ × 6 × (10 – 7) • ½ × 2 × 17 + ½ × 6 × 3 (= 17 + 9)		• ½ × 2 × (7 + 10) (= 17m² area of trapezium) • ½ × 6 × (10 – 7) (= 9m² area of a triangle)
 • ½ × (10 – 7) × (6 – 2) + 2 × 7 + 2 × 3 • ½ × 3 × 4 + 2 × 10 (= 6 + 20)		• ½ × (10 – 7) × (6 - 2) (= 6m² area of the triangle)
 • 6 × 10 – ½ × (6 – 2) × (7 + 10) • 6 × 10 – ½ × 4 × 17 (= 60 – 34)		• ½ × (6 – 2) × (7 + 10) (= 34m² area 'extra' trapezium)
26 (m²)	A1	CAO
Cost in the inclusive range (£)1780 to (£)1860	B1	FT '20 ≤ their derived composite **area** ≤ 30' for a suitable cost from the scatter diagram, within a range (shown below); must be for a composite area Do not FT from the perimeter or with the missing side, 25(m) Allow an answer in a range, provided 'their range of answers' is inclusively within the stated range On FT cost in the inclusive range:

Area (m²)	Least estimated cost (£)	Greatest estimated cost (£)
20	1410	1460
21	1460	1510
22	1520	1570
23	1590	1650
24	1650	1710
25	1700	1780
26	**1780**	**1860**
27	1850	1930
28	1920	2010
29	1970	2060
30	2030	2130

Unit 1: Intermediate Tier	Mark	Comments
6(c) (Repair of 23m^2 driveway cost £) 0.4 × 1590 to 0.4 × 1650 'No' unambiguously stated or implied **AND** a correctly evaluated 40% cost that will be in the range (£)636 to (£)660	B1 B1	 Do not award if 'No' is based on further working, such as 60% evaluated rather than 40%
6(c) Alternative method e.g. • *40% is (£)575 so 100% is 2.5 × 575 (= £1437.50)* • *40% is (£)600 so 100% is 2.5 × 600 (= £ 1500)* *'No' unambiguously stated or implied* ***AND** a correctly evaluated 100%* ***AND** shows less than needed, e.g. a reading from the diagram £1590 to £1650 (22.8m^2 for £1600)*	*B1* *B1*	
7(a) B and H in either order	B2	B1 for either B or H selected
7(b)(i) $\frac{42-30}{30}$ (× 100) or $\frac{42}{30}$ (× 100) – 1 (× 100) 40 (%)	M1 A1	Or full reverse method, e.g. • 20% of £30 is 30 ÷ 5 = £6, with either 6 × 2 = (£)12 or 6 × 7 = (£)42 • 10% of £30 is 30 ÷ 10 = £3, with either 3 × 4 = (£)12 or 3 × 14 = (£)42 Allow an answer of £40 from correct working If no marks, award SC1 for an answer of 140(%)
7(b)(ii) (Percentage profit is) $\frac{9\times42-10\times30}{10\times30}$ (× 100) or $\frac{9\times12-30}{10\times30}$ (× 100) or $\frac{9\times42}{10\times30}$ (× 100) – 1 (× 100) or $\frac{378}{300}$ (× 100) – 1 (× 100) or 1.26 (× 100) – 1 (× 100) or equivalent 26 (%) **AND** states 'profit'	M2 A2	Allow a reverse method of finding percentages of 300 used, these percentages must be correct and when added (or subtracted) could lead to an answer of 26% e.g. (2 × 10% =) 20% of 300 is 60 and 6% of 300 is 18 M1 for any one of the following: • (difference between sales and costs) 9 × 42 – 10 × 30 (= 378 – 300) • (sales) (£) 378 AND (cost) (£) 300 • (difference between sales and costs) (£) 78 Mark final answer A1 for any one of the following: • 26(%) • $\frac{78}{300}$ (× 100) or equivalent • $\frac{378}{300}$ × 100 = 126 (%) • $\frac{378}{300}$ = 1.26 • ('their $\frac{9\times42-10\times30}{10\times30}$') × 100 correctly evaluated and given as a percentage, allow if an error in the decimal part of their answer
7(b)(iii) 8	B1	

Unit 1: Intermediate Tier	Mark	Comments
8(a)(i) 200 – 80 or 90 + 30 120 (customers)	M1 A1	
8(a)(ii) 32 seconds	B1	
8(a)(iii) $\frac{200-170}{200}$ or $\frac{30}{200}$ or $\frac{15}{100}$ $\frac{3}{20}$	M1 A1	Award M1 for 0.15 or 15% Only ignore further working if written as 0.15 or 15% If no marks, award SC1 for an answer of $\frac{17}{20}$ (from 40 seconds or less)
8(b)(i) 36	B1	
8(b)(ii) 46 – 20 26	M1 A1	Allow 20 – 46
8(c) 'No' unambiguously stated or implied AND a reason, e.g. 'upper quartile is higher this year' '75% reading higher this year' 'interval was 37 (or 38) to 50 seconds last year, this year it is 46 to 50 seconds'	E1	Do not ignore incorrect values for the upper quartiles given, E0 if 'upper quartile' or '75%' stated with incorrect upper quartile readings Allow 'No' with a reason, e.g. '(last year) 38, (this year) 46' '(last year) 37.(…), (this year) 46' Do not accept, e.g. 'range greater this year' 'lower quartile is lower this year' 'median higher this year' 'customers still waiting at 50 seconds'

Unit 1: Intermediate Tier	Mark	Comments
9(a)(i) 1×10^5	B1	
9(a)(ii) A suitable calculation, including an <u>appropriate</u> approximation, e.g. $\frac{3\,100\,000}{21\,000}$ or $\frac{3\,100\,000}{20\,000}$ or $\frac{3\,000\,000}{20\,000}$ or $\frac{3\,000\,000}{21\,000}$ or equivalent	M2	Place value must be correct Must include an approximation M1 for the idea to divide (in the correct order), that may also include one place value error, e.g. $\frac{3.1\ million}{20\,735}$, $\frac{31\,000\,000}{20\,000}$, $\frac{3\,100\,000}{20\,700}$
Answer in the range 142 (people/km^2) to 155 (people/km^2)	A1	ISW. Allow 142.8, 142.9 and 143 rounded to 140 Accept equivalents, e.g. 150 written as 1.5×10^2
9(b) Idea that 360 000 is 120%	B1	Accept from sight of trial to increase 'their value' by 20% provided 'their value' <360 000
360 000 ÷ 1.2 or equivalent	M1	Award of M1 also implies previous B1
300 000 (people)	A1	
9(c) (Length) 6.6 ÷ (4.2 ÷ 1.4) or 6.6 ÷ 3 or equivalent	M1	
Length 2.2 (cm)	A1	
(Height) 4.2 × (9.9 ÷ 6.6) or 4.2 × 1.5 or 1.4 × (9.9 ÷ 2.2) or equivalent	M1	FT 1.4 × (9.9 ÷ 'their derived length')
Height 6.3 (cm)	A1	Note: Length (from *9.9 – 6.6* =) *3.3*(cm) M0 A0 Height (from 1.4 × (9.9 ÷ *3.3*) =) *4.2*(cm) M1 A1 (FT) Allow answers reversed in the answer space
9(c) <u>Alternative method</u> *(Height) 4.2 × (9.9 ÷ 6.6) or 4.2 × 1.5 or equivalent*	*M1*	
Height 6.3 (cm)	*A1*	
(Length) 6.6 ÷ (4.2 ÷ 1.4) or 6.6 ÷ 3 *or 9.9 ÷ (6.3 ÷ 1.4) or equivalent*	*M1*	*FT 9.9 ÷ ('their derived height' ÷ 1.4)*
Length 2.2 (cm)	*A1*	*Allow answers reversed in the answer space*