



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

SUMMER 2024 MARKING SCHEME

Unit 1: Intermediate Tier	Mark	Comments
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	M1 	

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

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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																																				
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	M1 for one of the following appropriate areas: • $\frac{1}{2} \times (10 - 7) \times (2 + 6)$ (= 12m² area of trapezium) • $\frac{1}{2} \times 2 \times (7 + 10)$ (= 17m² area of trapezium) • $\frac{1}{2} \times 6 \times (10 - 7)$ (= 9m² area of a triangle) • $\frac{1}{2} \times (10 - 7) \times (6 - 2)$ (= 6m² area of the triangle) • $\frac{1}{2} \times (6 - 2) \times (7 + 10)$ (= 34m² area 'extra' trapezium)																																				
		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: <table><tr><th>Area (m²)</th><th>Least estimated cost (£)</th><th>Greatest estimated cost (£)</th></tr><tr><td>20</td><td>1410</td><td>1460</td></tr><tr><td>21</td><td>1460</td><td>1510</td></tr><tr><td>22</td><td>1520</td><td>1570</td></tr><tr><td>23</td><td>1590</td><td>1650</td></tr><tr><td>24</td><td>1650</td><td>1710</td></tr><tr><td>25</td><td>1700</td><td>1780</td></tr><tr><td>26</td><td>1780</td><td>1860</td></tr><tr><td>27</td><td>1850</td><td>1930</td></tr><tr><td>28</td><td>1920</td><td>2010</td></tr><tr><td>29</td><td>1970</td><td>2060</td></tr><tr><td>30</td><td>2030</td><td>2130</td></tr></table>	Area (m ²)	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
Area (m ²)	Least estimated cost (£)	Greatest estimated cost (£)																																					
20	1410	1460																																					
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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	B1	
'No' unambiguously stated or implied AND a <u>correctly evaluated</u> 40% cost that will be in the range (£)636 to (£)660	B1	Do not award if 'No' is based on further working, such as 60% evaluated rather than 40%
6(c) <u>Alternative method</u> e.g. 40% is (£)575 so 100% is 2.5×575 (= £1437.50) 40% is (£)600 so 100% is 2.5×600 (= £1500)	B1	
'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	
7(a) B and H in either order	B2	B1 for either B or H selected
7(b)(i) $\frac{42-30}{30} (\times 100)$ or $\frac{42}{30} (\times 100) - 1 (\times 100)$	M1	Or full reverse method, e.g. 20% of £30 is $30 \div 5 = £6$, with either $6 \times 2 = (£)12$ or $6 \times 7 = (£)42$ 10% of £30 is $30 \div 10 = £3$, with either $3 \times 4 = (£)12$ or $3 \times 14 = (£)42$
40 (%)	A1	Allow an answer of £40 from correct working If no marks, award SC1 for an answer of 140(%)
7(b)(ii) (Percentage profit is) $\frac{9 \times 42 - 10 \times 30}{10 \times 30} (\times 100)$ or $\frac{9 \times 12 - 30}{10 \times 30} (\times 100)$ or $\frac{9 \times 42}{10 \times 30} (\times 100) - 1 (\times 100)$ or $\frac{378}{300} (\times 100) - 1 (\times 100)$ or $1.26 (\times 100) - 1 (\times 100)$ or equivalent	M2	Allow a reverse method of finding percentages of 300 used, these percentages must be correct and when added (or subtracted) <u>could</u> 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) $9 \times 42 - 10 \times 30$ (= 378 – 300) (sales) (£) 378 AND (cost) (£) 300 (difference between sales and costs) (£) 78
26 (%) AND states 'profit'	A2	Mark final answer A1 for any one of the following: 26(%) $\frac{78}{300} (\times 100)$ or equivalent $\frac{378}{300} \times 100 = 126$ (%) $\frac{378}{300} = 1.26$ (<u>'their 9×42' – 10 × 30</u>) × 100 correctly evaluated $\frac{10 \times 30}{10 \times 30}$ 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 Answer in the range 142 (people/km ²) to 155 (people/km ²)	M2 A1	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. $\frac{3.1\,million}{20\,735}$, $\frac{31\,000\,000}{20\,000}$, $\frac{3\,100\,000}{20\,700}$ 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% 360 000 ÷ 1.2 or equivalent 300 000 (people)	B1 M1 A1	Accept from sight of trial to increase 'their value' by 20% provided 'their value' <360 000 Award of M1 also implies previous B1
9(c) (Length) $6.6 \div (4.2 \div 1.4)$ or $6.6 \div 3$ or equivalent Length 2.2 (cm) (Height) $4.2 \times (9.9 \div 6.6)$ or 4.2×1.5 or $1.4 \times (9.9 \div 2.2)$ or equivalent Height 6.3 (cm)	M1 A1 M1 A1	FT $1.4 \times (9.9 \div \text{'their derived length'})$ Note: Length (from $9.9 - 6.6 =$) 3.3(cm) M0 A0 Height (from $1.4 \times (9.9 \div 3.3) =$) 4.2(cm) M1 A1 (FT) Allow answers reversed in the answer space
9(c) <u>Alternative method</u> (Height) $4.2 \times (9.9 \div 6.6)$ or 4.2×1.5 or equivalent Height 6.3 (cm) (Length) $6.6 \div (4.2 \div 1.4)$ or $6.6 \div 3$ or $9.9 \div (6.3 \div 1.4)$ or equivalent Length 2.2 (cm)	M1 A1 M1 A1	FT $9.9 \div (\text{'their derived height'} \div 1.4)$ Allow answers reversed in the answer space