GCSE MARKING SCHEME

AUTUMN 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

AUTUMN 2024 MARKING SCHEME

GCSE Mathematics Numeracy **Unit 1: Intermediate Tier**	Mark	Comments
1(a)(i) 045(°) (± 3°)	B1	Do not accept 45(°) (± 3°)
1(a)(ii) 243(°) (± 3°)	B1	
1(a)(iii) An unambiguous answer of 8 (km) or an answer in the range 7.68 (km) to 8.32 (km)	B2	This must be an unambiguous answer, do not award if another distance is also given as a final answer, e.g. • 5 miles = 8 km final answer 7 km • 5 miles = 8 km with final answer 8 ÷ 5 = 1.6 B1 for any one of the following: • (5 cm =) 5 miles = 8 km with a further incorrect calculation or distance • 5 (± 0.2) × 1.6 • 5 (± 0.2) × 8 ÷ 5 • 5 (± 0.2) × 1.609 • 5 (± 0.2) × 1.61 B0 for 5 (± 0.2) × 1.5
1(b)(i) Answer in the inclusive range 14.45 (lumens) to 14.5 (lumens)	B1	
1(b)(ii) Answer in the inclusive range 1.07 (candelas) to 1.075 (candelas)	B1	
1(c) Any value in the range 19 to 20	B2	Accept from reverse working Answer space takes precedence, if blank allow an unambiguous embedded answer in the range B1 for sight of unambiguous appropriate working, e.g. any of the following examples or similar: • 1 000 000 ÷ 52 000 • 1 000 000 ÷ 50 000 • $\frac{1\,000\,000}{52\,000}$ • $\frac{1\,000\,000}{50\,000}$ • $\frac{1000}{50}$ • $\frac{1000}{52}$
2(a) 40 × 1(.)75 ÷ 5 or 1(.)75 × 8 or equivalent (£)14 or 1400(p)	M2 A1	May be shown in stages M1 for any of the following: • 40 ÷ 5 • sight of an appropriate 8 • 40 × 1(.)75 (= 70 or 7000) • 1(.)75 ÷ 5 (= 0.35 or 35) If units are given they must be correct

2(b) Sight of $280 \div 4$ or $3 \times 280 \div 4$ Oil 210 (ml) Vinegar 70 (ml)	M1 A1 A1	 Answer space takes precedence Answer space takes precedence If M1 awarded but 210 (ml) and 70 (ml) are reversed, allow A0 A1 If M1 awarded with A0, A0 due to incorrect evaluation of $280 \div 4$ then also award SC1 if • 'their 210' + 'their 70' = 280, or • 'their 210' = 3 × 'their 70'
2(c) (Sells for a total of) $40 \times (0.)90$ OR (cost for 1 portion) $2400 \div 40$ or $24 \div 40$ (Sells for a total of $40 \times (0.)90$) (£)36 or 3600(p) OR (cost for 1 portion $24 \div 40$) 60 (p) or (£)0.60 (% profit) $\frac{36 - 24}{24} \times 100$ or $\frac{(0.)90 - (0.)60}{(0.)60} \times 100$ or $\frac{36}{24} \times 100 - 1 \times 100$ or $\frac{(0.)90}{(0.)60} - 1 \times 100$ or equivalent 50 (%)	M1 A1 m1 A1	 If units are given they must be correct Must be consistent place value, i.e. use of £ or p FT correct use of 'their $40 \times (0.)90$' or 'their $24 \div 40$' Accept a correct answer provided not from incorrect working, may be from reverse calculations or unsupported
3(a) Method, e.g. trial to cost with twice as many pots as saucers • 2×40 (+) 1×25 (= 105p) • 6×40 (+) 3×25 Calculation that would lead to a total cost of £10.50 or 10 saucers, e.g. • $20 \times 40 + 10 \times 25$ • $10 \times (2 \times 40 + 1 \times 25)$ • $10 \times$ (£)1.05 • 10×105(p) • $10(.)50 \div 1(.)05$ (Cost of 10 saucers 10×25p) (£)2.5(0)	M1 A1 B1	Accept sight of 105(p) or (£)1.05 as suitable method Allow for a suitable pair of double the number of plant pots to saucers, e.g. 18 pots and 9 saucers with 18×40 and 9×25 May be implied from sight of 10 saucers or 10 lots of 25p or (£)2.50 Must be as a final answer Answer space takes precedence Allow M1 A1 B1 for an unambiguous correct response

3(b) Method to compare the 3 packets, e.g. • For 1g of each considered: (Bee £2.49) Cornfield 15 ÷ 5 AND Butterfly 7.2(0) ÷ 3 • Complete comparison of Bee Mix (5g comparison with Cornfield) 5 × 2.49 AND then (3g comparison with Butterfly) 3 × 2.49 • Complete comparison of Butterfly Mix (1g comparison with Bee) Butterfly 7.2(0) ÷ 3 AND then comparison of Butterfly with Cornfield	M2	May be in stages with different pairs of mixes compared, eliminated and a further suitable pair compared M1 for method to compare 2 packets, e.g. • For 1g of each: (Bee £2.49) Cornfield 15 ÷ 5 or Butterfly 7.2(0) ÷ 3 • For 3g of each: (Butterfly £7.20) Bee 2.49 × 3 or Cornfield 3 × 15 ÷ 5 • For 5g of each: (Cornfield £15) Bee 2.49 × 5 or Butterfly 5 × 7.20 ÷ 3 • For 15g of each: Bee 15 × 2.49 and Cornfield 3 × 15 or Bee 15 × 2.49 and Butterfly 5 × 7.20 or Cornfield 3 × 15 and Butterfly 5 × 7.20
Accurate calculation(s) for comparison of **2** packets	A1	FT from M1 or M2 If units are given they must be correct, penalise once only
Accurate calculations for comparison of the **3** packets AND Conclusion, 'Butterfly Flower Mix', indicated or unambiguously implied	A1	

3(c)(i) (Area sown) ½ × (3.5 + 4.5) × 1.6 or 3.5 × 1.6 + ½ × (4.5 – 3.5) × 1.6 (= 5.6 + 0.8) 6.4 (m^2)	M1 A1	Allow intention of brackets, may be implied in further working CAO <u>FT only if an attempt to work with the trapezium to find 'their derived area'</u>, which may dimensionally incorrect, e.g. a length or a volume, otherwise no further FT. The calculation for 'their derived area' must include at least 2 of 3.5, 4.5 and 1.6
(Number of packets of seeds) 3	B1	(6.4 ÷ 2.5 = 2.56 so 3 packs) May be implied in further working FT 'their derived 6.4' ÷ 2.5 (rounded up to a whole number) provided both of the following conditions are met: • 'their derived 6.4' > 2.5 • 'their derived 6.4' ÷ 2.5 is not a whole number
(Cost of Cosmos seeds) 3 × 8(.)20 (£)24.60 or 2460(p)	M1 A1	Depends on <u>either</u> B1 previously awarded <u>or</u> on 'their derived 6.4' ÷ 2.5 rounded down to a whole number of packets > 1 Accept an equivalent full method If units are given they must be correct <u>If final B0 M0 A0, award SC1</u> for one of the following answers or equivalent in pence: • (8.20 ÷ 2.5 × 6.4 = 3.28 × 6.4 =) (£)20.99(2) or (£)21 • (8.20 ÷ 2.5 × 7 = 3.28 × 7 =) (£)22.96 • 'their derived area' × 3(.)28 correctly evaluated • 'their derived area rounded up to an integer' × 3(.)28 correctly evaluated
3(c)(i) 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.
3(c)(ii) 1 050 000	B1	

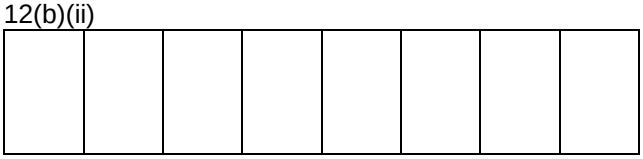
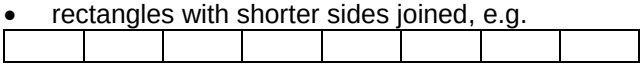
4(a) 20 ≤ time in minutes < 30	B1	Allow e.g. '20 to 30' '20 – 30' '20 < time < 30' '20 ≤ time ≤ 30' '20 < time ≤ 30' '12 pupils for 20 to 30 minutes' (implies the group) '12 pupils in 20 – 30 minutes' (implies the group) '12 (pupils), 20 – 30 minutes' (2 answers side by side, mark the right-hand attempt) Sight of 20 and 30 with incorrect inequality signs, e.g. '20 ≤ 30' Do not accept, e.g. '12' '25' '20 – 30 minutes, 12 (pupils)', (as a choice of answers, mark the right-hand attempt)
4(b) 15	B1	
4(c) Unambiguously indicates 'Can't tell' with a reason, e.g. 'doesn't give the raw data (for the group 0 to 10 minutes)', 'only know (frequency) for the group 0 to (less than) 10 minutes' '5 pupils spent less than 10 minutes, but the diagram doesn't show if any of these spent no time' 'it doesn't tell you exactly how many minutes each pupil spent individually'	E1	Allow 'Can't tell' with a reason such as, e.g. 'grouped data', 'data is grouped' 'it is given in a range on the diagram' 'it doesn't show specifically' 'graph is not specific' 'it doesn't given an exact time' 'the graph gives 0 to 10 minutes making it impossible to get an accurate reading' 'could be 1 minute each or 5 minutes each we don't know' (examples all within the group 0 ≤ time < 10) 'doesn't give the data for 0 minutes' 'because the group is from greater than or <u>equal to</u> 0 minutes to less than 10 minutes' 'graph does not say they did or not' 'we can't see this on the diagram' 'does not give enough data' Do not accept reasons that imply 0 minutes is not included in the diagram Do not accept, 'Can't tell' e.g. 'the groups are an estimate' 'could be 5 minutes each or 20 minutes each we don't know' (examples not all within the required group) 'because the group is from <u>greater than</u> 0 minutes to less than 10 minutes' 'doesn't tell us how many people there are'

4(d) Unambiguously indicates 'No' with a reason, e.g. 'it is the same number (both 5 pupils) but different number of Year 9 asked to Year 10', 'the totals are different', 'Year 9 percentage is lower (than Year 10)' '5/34 is not the same (percentage) as 5/33' 'there are more pupils in Year 9 (than in Year 10)' 'there are fewer pupils in Year 10 (than Year 9)'	E1	Check diagram for totals If 'totals are different' is stated or clearly implied, ignore any incorrect totals or fractions given, provided the numerator of 5 pupils is correct Alllow 'No' with a reason, e.g. 'the difference is 1' OR Allow 'No' with sight of total 34 for Year 9 and 33 for Year 10 Do not accept, e.g. 'because the results are different' 'the difference is 2' 'there are more pupils in Year 10 (than in Year 9)', unless the correct totals are seen 'there are fewer Year 9 (than Year 10)', unless the correct totals are seen
5. (0 × 8 +) 1 × 4 + 2 × 6 + 3 × 2 (=22) ÷ 20 1.1 (pets)	M1 m1 A1	ISW Allow an answer of 1 provided from sight of correct working If no marks, award SC2 for an answer of 1.5 from (8 + 4 + 12 + 6) ÷ 20 or 30 ÷ 20 OR SC1 for (8 + 1×4 + 2×6 + 3×2) ÷ 20 or (8 + 4 + 12 + 6) ÷ 20 or 30 ÷ 20
6. (Change to MVR) 360 × 20 7200 (MVR) (Only 500 and 1000 notes, so can buy) 7000 (MVR) (Cost to Gerallt for 7000 MVR is) 7000 ÷ 20 OR 360 – (7200 – 7000) ÷ 20 (£) 350	M1 A1 A1 M1 A1	If not stated, may be implied by 7000 (MVR) FT provided M1 previously awarded FT 'multiple of 500 MVR' provided > 500 Depends only on previous M1 awarded If final M0 A0, award SC1 for (£)10 from 200 ÷ 20
6. Alternative method *Considers unambiguously 14 multiples of £25 or 7 multiples of £50 or equivalent, e.g.* • *500 MVR = £25 and 14 × 25* • *1000 MVR = £50 and 7 × 50* *(Considers nearest multiple of £25 < £360) (£)350* *(Buys) 350 × 20 or 7× 1000 or 14 × 500 or equivalent* *7000 (MVR)*	*M2* *A1* *M1* *A1*	*M1 for any one of the following:* • *500 MVR = £25* • *1000 MVR = £50* *FT 'their 350' provided < 360 and it is a multiple of 25*

7. <u>Question 1</u> At least 3 groups without gaps or overlaps that cover a minimum inclusive range of 1 (day) to 20 (days)	B1	Listings must all be groups, with the exception of the initial inclusion of '0', provided at least 3 further groups are given Allow, e.g. 'Less than 8 (days), 8 to 15 (days), more than 15 (days)' '0, 1 to 10 days, 11 to 15 days, 16+ days' Do not accept, e.g. '1 < days < 7, 8 < days < 14, 15 < days < 21, …' (misuse of inequalities) '0, 1 to 10 days, 11 to 21 days' (0 is not a group, so only 2 groups)
7. <u>Question 2</u> At least 3 appropriate criteria in any order, e.g. 'Great, reasonable, not good', 'Scale of 0 to 10, with 10 being very happy', 'Very unhappy, happy, very happy',	B1	Accept use of smiley, blank and sad faces Allow, e.g. 'Yes, no, not sure', 'Yes, no, no answer' 'Yes, no, sometimes' Do not accept, e.g. 'Scale of 0 to 10' without stating which end of the scale is unhappy or happy, 'Yes, no, own answer', as 'own answer' is not a group
8. Appropriate sight of (30 000 – 10 000 =) 20 000 (dollars) or (36 000 – 30 000 =) 6000 (dollars) (Tax at 10%) 0.10 × (30 000 – 10 000) or 0.10 × 20 000 or equivalent 2000 (dollars) (Tax at 25%) 0.25 × 6000 or or 0.25 × (36 000 – 30 000) or equivalent 1500 (dollars) (Total tax due) 3500 (dollars)	B1 M1 A1 M1 A1 B1	Ignore £ or other currency for dollars May be implied in further working FT use of 'their (30 000 – 10 000)' from an error in subtraction CAO FT use of 'their (36 000 – 30 000)' from an error in subtraction CAO ISW FT 'their 2000' + 'their 1500' provided both M1 marks previously awarded

9. Complete method to calculate the area of cross-section, e.g. • 160 × 100 – 60 × (160 – 2 × 15) • 160 × 100 – 60 × 130 • 15 × 100 + (160 – 2 × 15) × (100 – 60) + 15 ×100 • 15 × 100 + 130 × 40 + 15 × 100 • 15 × 60 + 160 × (100 – 60) + 15 × 60 • 15 × 60 + 160 × 40 + 15 × 60 • 15 × 60 + (160 – 15) × (100 – 60) + 15 ×100 • 15 × 60 + 145 × 40 + 15 ×100	M2	Cross-section working may be embedded within working to find the depth (= 16 000 – 7800) (= 1500 + 5200 + 1500) (= 900 + 6400 + 900) (= 900 + 5800 + 1500) M1 for the sight of **2** dimensionally correct **products** (a pair of numbers) that must include at least 1 of the following evaluated products: • 15 × 60 = 900 • 15 × 100 = 1500 • 130 × 40 = 5200 • 145 × 40 = 5800 • 160 × 40 = 6400 • 60 × 130 = 7800 • 160 × 100 = 16 000
(Area cross-section) 8200 (cm^2)	A1	CAO
(Depth = Volume ÷ area X-section) 164 000 ÷ 8200	M1	FT 164 000 ÷ 'their **area**', provided 'their area' is dimensionally correct (e.g. not a length or a volume)
20 (cm)	A1	On FT ignore any decimal part in their evaluation (accepting also if decimal parts have led to rounding or truncation) Answer space takes precedence

10(a) 0.03 × 4000 + 4000 or 1.03 × 4000 (= £4120) or equivalent 0.03 × 4120 + 4120 or 1.03 × 4120 or equivalent (£)4243.6(0)	M1 M1 A1	Allow for sight of one of the following: • 4120 (irrespective of labelling) • 4240 (simple interest) FT 'their 4120' (the mark is for the method) (= £123.6(0) + £4120) CAO. Answer space takes precedence if completed, otherwise mark final answer for the amount If no marks, award SC1 for (£)3763.6(0) (from depreciation)
10(a) <u>Alternative method</u> *Sight of $1.03^2 \times 4000$* *1.0609×4000* *(£)4243.6(0)*	*M1* *A1* *A1*	*CAO. Answer space takes precedence if completed, otherwise mark final answer for the amount* *If no marks, award SC1 for (£)3763.6(0) (from depreciation)*
10(b)(i) 100 × 42 ÷ (100 + 40) or 42 ÷ 1.4 or equivalent (£) 30	M1 A1	CAO. Answer space takes precedence Accept a correct answer from trial and improvement
10(b)(ii) (Volume of gold = mass ÷ density =) $6 \times 10^{-3} \times 1000 \div 20$ or $6 \div 20$ or $6 \times 10^{-3} \div (20 \div 1000)$ or $6 \times 10^{-3} \div 0.02$ or equivalent 0.3 (cm^3) or $\frac{3}{10}$ (cm^3)	M2 A1	Must be dimensionally correct M1 for any one of the following: • sight of $6 \times 10^{-3} \times 1000$ (= 6 g) • sight of $20 \div 1000$ (= 0.02 kg/cm^3) • method with incorrect place value, 'their mass' ÷ 'their density' provided that • the only non-zero digit in 'their mass' = 6 <u>and</u> • the only non-zero digit in 'their density' = 2 e.g. $6 \times 10^{-3} \div 20$, $6 \times 10^{-3} \div 0.2$, $600 \div 20$, $6000 \div 20$ CAO, allowing 3×10^{-1} (cm^3)
11(a) 76 (g)	B1	Answer space takes precedence
11(b) 3 × 400 × 25 ÷ 100 or ¾ × 400 or equivalent 300 (little gulls)	M1 A1	If no marks, award SC1 for (¼ × 400 =) 100 (gulls)
11(c) 25(%)	B1	Answer space takes precedence
11(d)(i) Slender(-billed gulls)	B1	
11(d)(ii) Lower quartile	B1	<u>Strictly depends on B1 previously awarded in (d)(i)</u>
12(a) 2.425 m	B1	

12(b)(i) Sight of 2.595 (m) or equivalent in cm or mm	B1	Award B1 for sight of 4 × 0.005 in an appropriate calculation Allow 0.004999(....) for 0.005, must clearly be a recurring 9 digit
4 × 2.595 or 4 × 2.59 + 4 × 0.005 (= 10.36 + 0.02) or equivalent	M1	Or equivalent in cm or mm If B0, FT provided unambiguously chosen: FT 2.59 < 'their 2.595' ≤ 2.6
10.38(0 m)	A1	CAO, must be given in metres
12(b)(ii) 	B1	**Intention** to show 8 equal containers. Allow if: • there is very small gap (≈1mm) is shown between each of the containers • rectangles are not quite all the same size • a couple of the rectangles appear to be closer to squares • drawn free hand Do not accept if: • rectangles are shown as all squares • rectangles with shorter sides joined, e.g.  B0 for an 8 by 4 grid of squares or rectangles drawn
12(c) Complete method to calculate the percentage increase • $\frac{1.2 \times 10^8 - 2 \times 10^7}{2 \times 10^7}$ (× 100) • 5 (× 100) • $\frac{1.2 \times 10^8}{2 \times 10^7}$ (× 100) – 1(× 100) • 6 (× 100) – 1(× 100)	M2	<u>Allow place value errors in writing the given standard form numbers in full for M2 and M1 only</u> M1 for any one of the following calculations or evaluations: • $1.2 \times 10^8 - 2 \times 10^7$ (= 1×10^8 = 100 000 000) • $\frac{1.2 \times 10^8}{2 \times 10^7}$ (= 0.6 × 10 (× 100) or 6(× 100) or 600(%))
500 (%)	A1	CAO Answer space completing the statement takes precedence Accept equivalents 0.5×10^3 or 5×10^2 Accept an unsupported correct answer or a correct answer from reverse calculations