GCSE MARKING SCHEME

SUMMER 2024

GCSE
MATHEMATICS – COMPONENT 2
(FOUNDATION TIER)
C300U20-1

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.

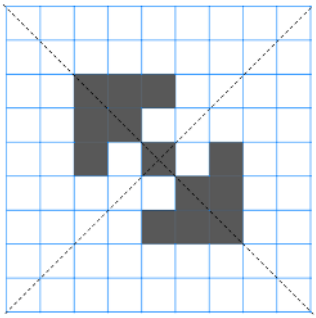
This marking scheme reflects the criteria by which this assessment was marked in a live series and was finalised following detailed discussion at an examiners' conference. A team of qualified examiners were trained specifically in the application of this marking scheme. The aim of the conference was 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.

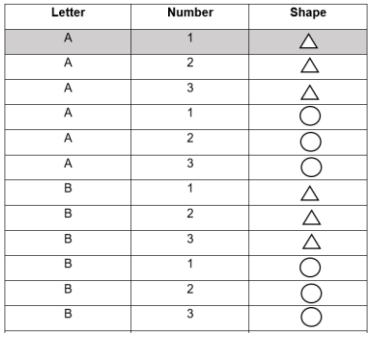
EDUQAS GCSE MATHEMATICS

SUMMER 2024 MARK SCHEME

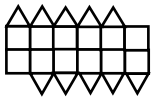
GCSE (9-1) Mathematics Component 2: Foundation Tier	Mark	
1.(a) 45 + 13.20 + 0.84 × 5 or 4500 + 1320 + 84 × 5 = (£) 62.4(0) or 6240(p)	M1 A1	May be seen in stages. Allow £62.40p If units are given, they must be correct. If no marks, award SC1 for one of the following: • A correct calculation with a mixture of units e.g.45 + 13.20 + 84 × 5 or sight of (£)478.2(0) • An answer of (£)17.4(0) or 1740(p) (from 13.20 + 0.84 × 5, bracelet omitted) • An answer of (£)49.2(0) or 4920(p) (from 45 + 0.84 × 5, charm omitted)
1.(b) 5	B1	Allow an embedded answer
1.(c) 45 + 4×18 – 95 or 117 – 95 = (£) 22	M1 A1	May be seen in stages. If units are given, they must be correct.
	(5)	
2.(a) 12	B1	
2.(b) A rectangle with an area of 12 cm^2 e.g. 12 × 1, 6 × 2, 4 × 3	B1	FT 'their area' Allow a drawing of a square.
	(2)	
3.(a) 91	B1	
3.(b) 20	B1	
3.(c) 31	B1	
3.(d) 169	B1	
	(4)	

4.(a) 135	B1	± 2(°)
4.(b)(i) Diameter	B1	Accept any unambiguous indication
4.(b)(ii) Perpendicular	B1	
4.(b)(iii) Parallel	B1	
4.(c) cuboid triangular prism cube square-based pyramid cone	B1	Accept any unambiguous indication
4.(d) Both lines drawn with no incorrect lines. 	B2	Mark intention. Allow if only drawn for the shape not the grid. B1 for one of the following: • One correct line with no more than one incorrect line. • Two correct lines and only one incorrect line.
	(7)	

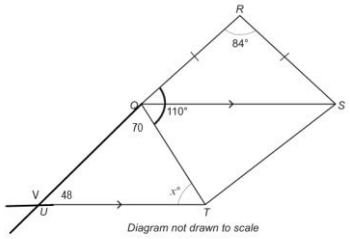
5.(a) (63.75 – 3) ÷ 1.35 = 45	M1 A1	May be seen in stages Allow an embedded answer unless contradicted. If no marks, award SC1 for an answer of 61.5(27…) (from 63.75 – 3 ÷ 1.35)
5.(b) 2 × 35.6 × 4 or 284.8 (cm) or 2 × 0.356 × 4 or 2.848 (m) 400 – (2 ×) 35.6 × 4 or 4 – (2 ×) 0.356 × 4 = 115.2 (cm) or = 1.152 (m)	 M2 m1 A1	Answer line take precedence. May be seen in stages. M1 for either of: • 35.6 × 4 or 142.4 (cm) • 0.356 × 4 or 1.424 (m) FT from M2 or M1 CAO but allow 115 (cm) or 1.15 (m) from correct working. If units are given, they must be correct.
Alternative method *$(\frac{400}{2}$ – 35.6 × 4) × 2* *or $(\frac{4}{2}$ – 0.356 × 4) × 2 oe* *= 115.2 (cm) or = 1.152 (m)*	*M3* *A1*	*May be seen in stages.* *M2 for either of:* • *$\frac{400}{2}$ – 35.6 × 4 or 57.6 (cm)* • *$\frac{4}{2}$ – 0.356 × 4 or 0.576 (m)* *M1 for either of:* • *35.6 × 4 or 142.4 (cm)* • *0.356 × 4 or 1.424 (m)* *CAO but allow 115 (cm) or 1.15 (m) from correct working.* *If units are given, they must be correct.*
5.(c)(i) 595(.35) (g)	B2	B1 for one of the following: • 7 × 28.35 • 198(.45) • 7 × 3 × 28.35 • 21 × 28.35
5.(c)(ii) 18 (ounces)	B2	B1 for either of: • 17.6(36….) • 500 ÷ 28.35 oe
	(10)	

6.(a)  	B2	B2 for a complete table with no errors or repeats, except the first row. B1 for 6 or more correct rows, ignoring any repeated rows. Note: order of rows may be different. Allow the use of words or letters for triangle and circle.
6.(b) $\frac{1}{12}$ or $0.08\dot{3}$ or $8.\dot{3}\%$ oe ISW	B1	Allow 0.0833(...) or 8.33(…)% FT their table <u>provided B1 awarded in (a).</u> B0 for '1 out of 12' oe or 1:12 only.
	(3)	
7.(a) $\frac{7}{50}$	B2	B1 for either of: • $\frac{9+5}{100}$ • $\frac{14}{100}$ or an equivalent fraction that has not been fully simplified Allow B1 for 0.14 B0 for 14% unless changed to a decimal or fraction
7.(b) 456 ÷ 4 oe = 114 (g)	M1 A1	 Mark final answer
7.(c) 0.36 × 1350 oe = 486 (g)	M1 A1	 Mark final answer
	(6)	

8.(a)(i) 13	B1	May be seen on the number machine or in a calculation.
8.(a)(ii) (a =) 1.1	B2	May be seen on the number machine or embedded in a calculation. Award B2 unless contradicted by a ≠ 1.1. B1 for one of the following: • 22 ÷ (37.5 – 17.5) • 22 ÷ a = 20 • 20 × a = 22 • a = 22 ÷ 20
8.(b) (£) $\frac{t}{3}$ or $\frac{1}{3}$t or 0.$\dot{3}$t	B1	Allow t/3 and 0.33(…)t and t$\frac{1}{3}$. Allow use of T for t. Do not allow t ÷ 3 or t × $\frac{1}{3}$ or $\frac{t}{3}$ = t or 0.3t
8.(c) 8x + 5	B2	Mark final answer B1 for one of the following: • 8 × x + 5 or equivalent unsimplified expression • x8 + 5 • 8x + 5 seen and then spoilt e.g. 8x + 5 = 13x
8.(d) 117f	B2	B1 for sight of 112f or 117f^2
8.(e) 72p – 24	B1	Mark final answer
8.(f) 5x = 13 (x =) $\frac{13}{5}$ or $2\frac{3}{5}$ or 2.6 ISW	B1 B1	Allow an embedded answer provided it is not contradicted. FT from 5x = k but if on FT it simplifies to an integer the answer must be given as an integer. <u>Note:</u> *An answer of 2.6 is awarded B1 B1.* If no marks, award SC1 for (x =) (11 + 2) ÷ 5 not 11 + 2 ÷ 5
8.(g) (±) 5.57	B2	B1 for (±) 5.56(7…) or 5.6 but not 5.5 or 5.60
	(13)	

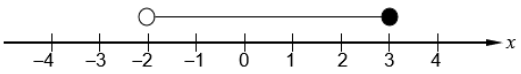
9.(a) Thames AND Hicks Bay	B1	In any order.
9.(b) 380 380 ÷ 4.5 oe = 84(.44…) (km/h)	B1 M1 A1	May be unambiguously indicated in the table Allow M1 for one of the following: • 380 ÷ 4.3 (= 88.37….) • 380 ÷ 270 (= 1.407…) • 'their 380' ÷ 4.5 provided 'their 380' is clearly use of a value from the table FT 'their 380' ÷ 4.5 only
	(4)	
10.(a)(i) A correct diagram for pattern 5 	B1	Allow a good freehand drawing. Must see internal lines.
10.(a)(ii) No, indicated with a correct explanation e.g. 'The number of squares and triangles are always even' 'These are odd numbers.' 'The number of squares must be even.' 'The number of triangles must be even.' '23 and 21 are not in the 2 times table.' '23 is an odd number.' '21 is an odd number.' 'They are not multiples of 2.'	E1	Allow e.g. 'There would be 1 square left over.' 'There would be 1 triangle left over.' 'There will not be an equal number of triangles on the top and bottom.' 'There will not be an equal number of squares on the top and bottom.' 'There needs to be one more of each.' Do not allow 'It is going up in 2's.' 'The number of squares and triangles are equal.' 'There will always be two more squares than triangles.'
10(a)(iii) 2n + 2 or 2(n + 1)	B2	Condone the use of other letters e.g. 2x + 2 B1 for n2 + 2 or 2n ± k where k ≠ 0
10.(b) -1, 3 and 7	B2	Allow in any order. B1 for one of the following: • Any two of -1, 3, and 7 as the first 3 terms e.g. -5, -1, 3 • -1, 3, 7, 11 …. correct sequence continued.
	(6)	

11. 5 (drink multipacks) AND 4 (crisp multipacks)	B3	May be implied in working. e.g. 28 × 5 = 140 AND 35 × 4 = 140 B2 can be awarded for one of the following: • identifying the LCM = 140 e.g. 28, 56, 84, 112, <u>140</u> 35, 70, 105, <u>140</u> • $2^2 \times 5 \times 7$ oe (from prime factors) • for 10 AND 8 (from a common multiple of 280) • for 15 AND 12 (from a common multiple of 420) B1 can be awarded for one of the following: • listing the multiples of 28 and 35 provided at least the first three are correct for each number. • sight of 5×7 AND 4×7 or $2^2 \times 7$ • for identifying a common multiple e.g. 280 • for a valid method of identifying a common multiple e.g. $(28 \times 35) \div 7$
$5 \times 5.35 + 4 \times 4.27$ = (£)43.83	M1 A1	FT 'their 5' and 'their 4' provided at least B1 previously awarded and their total ≠ 28 × 35 or 980, and they have used the correct number of each multipack from their common multiple. CAO
	(5)	

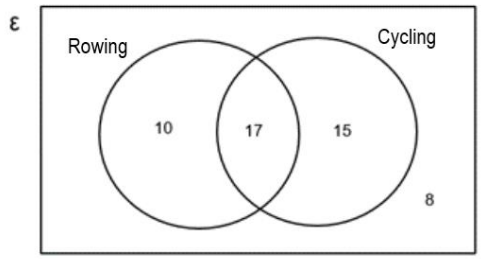
12.(a)(i) 360 ÷ 24 = 15 (sides)	 M1 A1	
12.(a)(ii) (180 – 24) × 15 oe = 2340(°)	 M1 A1	 FT 'their number of sides' if > 4 FT
Alternative Method *(15 – 2) × 180 oe* *= 2340(°)*	 *M1* *A1*	 *FT 'their number of sides' if > 4* *FT*
12.(b) (RSQ or RQS =) 48 (°) x = 62 At least two reasons given, including (SQT = QTU) alternate angles AND base angles in an isosceles triangle are equal.	 B2 B1 E1	Answers may be seen on the diagram B1 for (180 – 84) ÷ 2 oe FT 'their 48' provided B1 previously awarded Dependent on at least B1 B1 previously awarded.
Alternative method *(extending RQ and UT to meet at a point V)*  *(RSQ or RQS =) 48 (°)* *x = 62* *At least two reasons given, including* *(RQS = QVT) corresponding angles or* *(SQV + QVT = 180) co-interior angles* *AND* *base angles in an isosceles triangle are equal.*	 *B2* *B1* *E1*	 *B1 for (180 – 84) ÷ 2 oe* *FT 'their 48' provided B1 previously awarded* *Dependent on at least B1 B1 previously awarded.*
	(8)	

13.(a) Any two of the following: e.g. 1.Reason for suitability of the location. • 'Conducting the survey outside a travel agent is biased as people using a travel agent are likely to go abroad.' • 'She has only surveyed outside her local travel agent.' 2. Reason for suitability of the sample size. • '35 is **not a big enough sample** and is unlikely to be a true representation of the population.' 3. Reason for suitability of the time the survey is carried out. • 'Cara should conduct the survey at various times of the week/weekend not just Tuesday afternoon to ensure a full cross section of people are included.'	B2	B1 for one of the correct reasons Note: Two reasons may be given in one part of the answer space. Allow e.g. 'Regular travellers go to a travel agent.' 'The location is biased.' 'They will be booking holidays.' 'She is staying in one area.' 'Only asked 35 people.' 'Not enough people asked.' 'Most people book holidays at the weekend.' 'Most people work in the week.' 'It's only one afternoon.' 'Not everyone will use the travel agent on a Tuesday.' 'She is doing it once.' 'It's only a Tuesday afternoon.' Do not allow 'Biased.' 'It's a Tuesday afternoon.' 'Some people may not use a travel agency to book holidays abroad.' 'Some people may book online.' 'It's an odd number of people.'
13.(b) Two criticisms, one referring to the overlap in the option boxes and one about the missing time period in the question. e.g. '3 is in two boxes.' 'Wouldn't know where to tick for 3.' 'It doesn't specify a time period.' 'I'm not sure if its per year or five years etc.'	B2	B1 for one correct criticism Note: Two criticisms may be given in one part of the answer space. Allow e.g. 'Overlaps.' Do not allow 'The question is vague.' 'The question is not specific.'
	(4)	

14.(a) 6 × 24000 ÷ 100 oe = 1440 (m)	M2 A1	Allow for 6 ± 2mm × 24000 ÷ 100 M1 for one of the following: • 'their 6' × 24000 ÷ 100 • 6 × 24000 • 144000 (cm) • 6 ± 2mm × 24000 (139200 to 148800) • 1cm represents 240m FT 'their 6' × 24000 ÷ 100 only. If units are given, they must be correct for M2 A1. If no marks award SC1 for either of the following: • an answer in the range 0.058 m to 0.062 m • an answer with a place value error only e.g. 144 m (or 139.2 m to 148.8 m) or 1440000 (or 1392000 m to 1488000 m) <u>Note:</u> • Answers in the range 1392 to 1488 are awarded M2 A1. • ISW if 1440m is seen but then correctly or incorrectly converted to km.
14.(b) 125(°)	B1	± 2(°)
	(4)	
15.(a) 390 ÷ (1+5) x 5 or 390 - $\frac{390}{1+5}$ = 325 (ml)	M1 A1	 Allow M1 A1 for 65:325
15.(b) 4 : 9	B2	B1 for sight of 120:270 or equivalent ratio that is not fully simplified. If no marks, award SC1 for an answer of 4 : 13 (from 120 : 390)
	(4)	

16*. Mid-points: 75, 85, 95, 105, 115 $75 \times 5 + 85 \times 7 + 95 \times 12 + 105 \times 11 + 115 \times 10$ $\div 45$ $98\frac{1}{9}$ or $\frac{883}{9}$ or 98.1(1…) (seconds)	 B1 M2 m1 A1	 May be implied from correct totals, see below. FT 'their mid-points' provided at least 4 of these are at the bounds or within the groups 375 + 595 + 1140 + 1155 + 1150 (= 4415) M1 for the addition of five products allowing one error with the frequencies. If mid-points are **not** given, then no marks except for the following cases: • B1 M0 for five correct products not added • B1 M2 for five correct products in an addition • B0 M1 for four correct out of five products in an addition FT provided M2 m1 awarded, for the correct evaluation using their mid-points Allow 98 from correct working. Allow truncated or rounded decimal FT answers.
	(5)	
17*.(a) $(x - 8)(x + 3)$ ISW	B2	B1 for a pair of brackets (using integers only) that expand to give, $x^2 - 5x \pm \ldots..$ or $x^2 \pm \ldots.. - 24$ e.g. $(x + 8)(x - 3)$ or $(x - 6)(x + 1)$
17.(b) $27h^6$	B2	Mark final answer B1 for kh^6 or $27h^n$ where $k > 1$ and $n > 1$
17.(c)  	B1	
	(5)	
18.* $(BC^2 =) 7.2^2 + 5.4^2$ or $(BC^2 =) 81$ $(BC =) \sqrt{7.2^2 + 5.4^2}$ or $\sqrt{81}$ (BC =) 9 (cm) (Area =) $\frac{4.9 \times 9}{2}$ = 22.05 (cm^2)	 M1 A1 A1 m1 A1	Allow equivalent methods May be shown in further working. FT from M1 for the correctly evaluated square root of 'their 81' provided their answer > 7·2. FT 'their 9' FT. Accept 22 or 22.1 from correct working.
	(5)	

19*.(a) Correctly completing the tree diagram 0.6, 0.75, 0.25, 0.75 oe	B2	B1 for a correct pair of branches (total 1)
19.(b) 0.6×0.25 $= 0.15$ oe	M1 A1	FT their tree diagram provided their values are between 0 and 1 FT Ignore incorrect conversion of 'their 0.15' to another form if the correct answer seen. Do not ignore further calculations.
	(4)	
20*.(a) 4×0.55^7 400×0.55^7 = 0.06089… or 0.0609 (m) 6.089….. or 6.09 (cm)	M2 A1	M1 for 4×0.55^n or 400×0.55^n where $1 \leq n < 9$ CAO. If units are given, they must be correct. Mark final answer. Accept 0.061 or 0.06 (m) , 6.1 or 6 (cm) from correct working **provided no inaccurate working seen.** If no marks, award SC1 for an answer of 0.0149.. or 0.015 (m) or 1.49.. or 1.5 (cm) (from 4×0.45^7 or 400×0.45^7)
20.(b)(i) A correct assumption e.g. 'The surface it bounces on is the same on each bounce.' 'The ball bounces on level ground.' 'That the 55% is correct for <u>all</u> bounces.' 'No energy is lost elsewhere.' 'There is no wind.' 'There was nothing in the way.'	E1	Allow e.g. 'It is flat.' – implies the surface 'No other forces acting on the ball.' 'Nothing interfered with the bouncing.' Do not allow e.g. 'It was dropped without force. ' 'The ball is dropped with the same force every time.'
20.(b)(ii) A correct effect of the assumption e.g. 'There will be no change to my answer.'	E1	If no valid assumption is made, then this mark cannot be awarded. Cannot award E0 E1. The effect must follow their assumption.
	(5)	

21.*(a) A fully correct Venn diagram  	B2	If zero is seen in the intersection award no marks. All blank spaces are assumed to be zero B1 for one of the following: • 8 and 17 correctly placed • 8 correct, Rowing 27 AND Cycling 32 e.g. 11, 16, 16 • 8 correct, Rowing 27 OR Cycling 32 AND the three values that add to 42 e.g. 11, 16, 15 • 10, 17, 15 correct and 8 omitted Note: Penalise -1 for use of tallies or dots.
21.(b) $\frac{10}{50}$ or $\frac{1}{5}$ oe ISW	B2	FT their Venn diagram provided no sections are left blank or zero. Mark to the candidates advantage. FT $\frac{\text{'their 10'}}{50}$ provided 'their 10' < 27 B1 for $\frac{\text{'their 10'}}{\text{'their 50'}}$ provided 'their 10' < 27 B1 for $\frac{\text{'their 10'}}{n}$ provided 'their 10' < 27 and 'their 10' < n < 50 Penalise incorrect notation (e.g. '10 in 50') −1.
	(4)	

22*. 825 × 6.27 = 5172.75 (R$) 5150 (R$) 5150 ÷ 6.27 = (£) 821.37 ISW	M1 A1 A1 M1 A1	 FT 'their 5172.75' rounded down to the nearest 50 provided M1 previously awarded Sight of 5150 (R$) with no incorrect working implies M1 A1 A1. Strict FT 'their 5150' provided a multiple of 50 If 5150 not seen award M1 and the previous A1 for 103 × 50 ÷ 6.27 FT Answer must be correct to the nearest penny. If final M0 A0, then award a further SC1 for (£)3.63 (left) or similar FT.
Alternative method *825 ÷ (50 ÷ 6.27)* *=103.4(5…)* *(103 × 50 =) 5150* *5150 ÷ 6.27* *= (£) 821.37 ISW*	*M1* *A1* *A1* *M1* *A1*	 *Award M1 A0 for 825 ÷ 7.97 = 103.5…* *FT 'their 103(….) × 50 ' provided 'their 103(….)' has been rounded down and M1 previously awarded* *Strict FT 'their 5150' provided a multiple of 50* *If 5150 not seen, award M1 and the previous A1 for 103 × 50 ÷ 6.27* *FT Answer must be correct to the nearest penny.* *If final M0 A0, then award a further SC1 for (£)3.63 (left) or similar FT*
	(5)	
23.* $R = \frac{P^3}{Q}$	B2	B1 for one of the following: • $RQ = P^3$ • $R = P^3 \div Q$ • $\frac{P^3}{Q}$ (R omitted) B0 for $P^3 \div Q$
	(2)	