GCSE MARKING SCHEME

SUMMER 2019

MATHEMATICS – COMPONENT 2
(FOUNDATION TIER)
C300U20-1

INTRODUCTION

This marking scheme was used by WJEC for the 2019 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.

GCSE MATHEMATICS

COMPONENT 2 – FOUNDATION TIER

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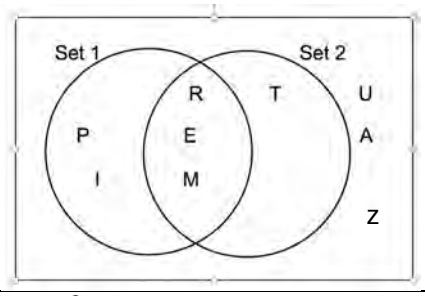
	Mark	Comment
1(a) 35(p), 58(p), (£.0.)95, (£)3.45, (£)7.25 Or equivalent.	B2	B1 if only one value incorrectly placed or omitted or sight of all values in the same units but incorrect order. B1 for listing items in the correct order.
1(b) (1100 x 0.58= £)638 or 63800(p)	B1	If units are given, they must be correct.
1(c) 490 ÷ 35 OR 4.90 ÷ 0.35 = 14	M1 A1	Allow M1 for 490 ÷ 0.35 or 4.90 ÷ 35 Accept embedded answer e.g. 35 x 14 = 490
1(d) 10 – (7.25 + 0.35 + 0.95) or equivalent = (£)1.45 OR 145(p)	M1 A1 (7)	10 – 8.55 Allow inconsistent units for M1. If units are given, they must be correct.
2(a) Twenty thousand (and) fifty-six	B1	
2(b) '(8 is) greater than (5)' or '(8 is) more than (5)' or equivalent.	B1	
2(c)(i) X Y 6 4 Z where X,Y and Z are non-repeating digits from the list.	B1	
2(c) (ii) (6) Thousand(s)	B1	Allow 6000
2(d) $\frac{3}{100}$ identified.	B1 (5)	
3(a) 0.56 x 850 or equivalent method = 476	M1 A1	
3(b) 0.07 (x 1250 =87.5)	E1	Allow fully correct methods as 'explanations'
3(c) (100 x) 9 ÷ 24 (=0.375) OR 0.36 x 24 (=8.64) 'Yes' AND comparison between the two values 37.5% > 36% or 8.64 < 9.	B1 E1 (5)	

4(a) (a =) 57 (b =) 46 (c =) 69	B1 B1 B2	B1 for 180 – (78+33) or equivalent
4(b) Diameter indicated	B1	
4(c) 72 + 98 + 56 + 87 + 47 = 360 Identifying 85°.	M2 A1 (8)	Award M1 for 72 + 98 + 56 (=226) + **two** of 85 or 87 or 47. Implied by sight of 358 or 398 or 134 *Alternative method 1:* *72 + 98 + 56 + 85 + 87 + 47 – 360* *M2* *= 85* *A1* *Alternative method 2:* *445 – 360* *M2* *=85* *A1* *Sight of '445' and correct answer will be M2A1*
5(a) 10x2.6 OR 14x2.6 or equivalent (perimeter of shape 1 =) 26(cm) (perimeter of shape 2 =) 36.4(cm)	M1 A1 A1	If no marks, award SC1 for perimeter answers of 10(cm) AND 14(cm).
5(b) (i) Sketches a 3x3 square (ii) 9 x 2.6^2 or $(3 \times 2.6)^2$ 60.84(cm^2)	B1 M1 A1 (6)	Accept any reasonable attempt at a 3x3 square.
6(a) 101 (miles)	B1	
6(b) Manchester and York	B1	Accept in either order.
6(c) (204 + 34) – 216 = 22(miles)	M1 A1 (4)	CAO If no marks awarded, then SC1 for sight of 238 or for the correct answer to 'their 204' + 'their 34' – 216, provided that either 204 or 34 is correct.
7(a) (i) b – 5 (ii) 3(b – 5) or 3b – 15 ISW	B1 B1	FT 'their (b – 5)' if of equivalent difficulty
7(b) Indicates 'No' AND explains that e.g. 'you can only add like terms', or equivalent.	E1	Allow e.g. 'you cannot add different letters'
7(c) (15 x -23 =) -345	B1 (4)	CAO

8(a) Indicates 'No' AND explains that e.g. 'Probabilities should be between 0 and 1' or '1.25 is greater than 1' or equivalent.	B1	Allow 'Answer has to be less than 1'
8(b) (1/6 of 24 =) 4 (times)	B1	
8(c) Indicates '4-sided spinner' AND explains e.g. '1/4 is greater than 1/6' or '1/4 is the greater proportion' or equivalent.	E1	Allow 'less numbers on 4-sided' or equivalent. Allow 'the angle is greater on 4-sided' Do not allow references to greater area or space.
8(d) 1 – [0.33 + 0.25] (= 0.42) ÷ 3 Table completed with 0.14 and 0.14 and 0.14	M1 m1 A1 (6)	Mark correct responses completed into the table. Allow for 3 numbers that add to 0.42 CAO If table not completed, allow for unambiguous sight of an answer of 0.14.
9(a) 2 or 6	B1	
9(b) (i) $\frac{7}{15}$	B1	
9(b) (ii) 7:8	B1	
9(b) (iii) 1 black counter and 4 white counters in the spaces or on the diagram	B2	B1 for sight of 8:12 B1 for showing an equivalent ratio of 2:3 or for two numbers that make the ratio 2:3 but are not the smallest numbers for answers of 8 and 12.
9(c) 3 x 85.75 ÷ 7 or 4 x 85.75 ÷ 7 Zayn (£) 36.75 Edith (£) 49	M1 A1 A1 (8)	 Correct answers in the wrong order is M1 SC1
10. An answer of 225	B2 (2)	B1 for 256 or 289
11. (Shop A price would be) 2 x 0.7 x (£)9.90 or equivalent = (£) 13.86 (Shop B price would be) 9.20 + 0.5 x 9.20 = (£)13.8(0) Shop B is better value	 M1 A1 M1 A1 E1 (5)	 FT 'their (£) 13.86 and (£)13.80' provided at least M1 has been awarded.
12(a) 120	B1	
12(b) (40 – 13 + 85) = 112	B2	B1 for sight of 27 or the total of 'their 40 – 13' + 85
12(c) A valid explanation e.g. 'more of the students are aged 16' or 'students are not working as they are revising'	E1 (4)	

13(a)  	B2	Award B1 for Set 1 and Set 2 completed correctly with A, U and Z omitted or B1 for all letters used with at most 2 errors.
13(b) $\frac{3}{9}$ or equivalent	B2 (4)	ISW FT 'their intersection' B1 for 3/n or m/9 in a fraction <1 or '3 out of 9' or '3 in 9'.
14(a) (i) (£)30	B1	
14(a) (ii) ($)42	B1	Answers in the range 41 - 42
14(a) (iii) (£)96	B1	
14(b) (25 x 2.44 – 'their 42' =) 19	B2 (5)	FT 'their (a)(ii)'. B1 for sight of 61
15(a) 0.38	B2	B1 for 0.37(647…..)
15(b) $4.5x10^{14}$	B1 (3)	
16. (width =) 54 ÷ 12 (=4.5) x 3 enlarged width = 13.5(cm)	M1 m1 A1 (3)	 CAO
17(a) 1.5 (hours) or equivalent	B1	Allow 1:30(hours) but not 1.3(0 hours)
17(b) Time = 36 ÷ 16 (=2.25) = 2h15min	M1 A1	 CAO
17(c) 180 ÷ 24 x100 = 750(cm/h)	M1 M1 A1 (6)	These calculations can be completed in either order. CAO *Note: Digits '75' would indicate first M1* *18000 (cm) would indicate 2nd M1*
18*. $13 \times 6 - 17^3$ or $26 \times 3 - 17^3$ or $39 \times 2 - 17^3$ 1.34×232 0.82×4530 -4835 and 310.88 and 3714.6	B1 B1 B1 B1 (4)	 Do not accept 134% × 232 CAO. Independent mark *Misreads: e.g. $5 \times 13 - 17^3 = -4848$ is B0, but FT as misread for possible final B1*

19*(a) Mid points: 15, 25, 35, 45 $15\times5 + 25\times20 + 35\times23 + 45\times52$ (= 75 + 500 + 805 + 2340 = 3720) ÷100 37(.2mm)	B1 M1 m1 A1	 FT provided 'their midpoints' within the 'bounds' inclusive Unsupported 37.2, award all 4 marks
19*(b) $40 \leq x < 50$	B1 (5)	Accept any unambiguous indication
20*. sin f = 8.4/12.3 (f =) 43(.07...°)	M1 A2 (3)	 A1 for (f =) $\sin^{-1}0.68(29...)$
21*. 2500×0.84^n with any value of n from n=1 to n=10 or equivalent 2500×0.84^n with a second value of n from n=1 to n=10 or n = 6 or equivalent leading to an answer closer to £1000 than the previous trial 6 (years)	M1 m1 A1 (3)	(2500 × 0.84 = £2100) (2500×0.84^2 = £1764) (2500×0.84^3 = £1481.76) (2500×0.84^4 = £1244.6784) (2500×0.84^5 = £1045.529...) (2500×0.84^6 = £878.245...) (2500×0.84^7 = £737.725...) (2500×0.84^8 = £619.689...) (2500×0.84^9 = £520.539...) (2500×0.84^{10} = £437.253...) CAO If no working, award SC2 for an answer of 6 (years)
22*(a) $3x^2 + 18xy + 5xy + 30y^2$ $3x^2 + 23xy + 30y^2$	B2 B1	B1 for any 2 terms correct FT for equivalent level of difficulty, providing at least 3 terms to consider and like terms to collect
22*(b) (x – 9)(x - 4)	B2	B1 for (x ... 9)(x ... 4)
22*(c) (w + 9)(w – 2) = 0 w = -9 with w= 2	B2 B1 (8)	B1 for (w ...9)(w ... 2) STRICT FT from 'their pair of brackets' *Alternative:* *(w=) $\{-7 \pm\sqrt{(7^2 - 4\times1\times-18)}\}/ 2$* *M1* *(=) $(-7 \pm\sqrt{121})/2$* *A1* *w = -9 with w = 2* *A1* *Accept trial & improvement method only if both solutions are found correctly for B3*
23*. (First distance) 45 × 40 ÷ 60 (Second distance) 60 × 25 ÷ 60 (Total distance) 55 (miles) (Overall average speed) 55 ÷ (65/60) or equivalent in stages 50.7(69...mph) or 50.8(mph) or 51(mph)	M1 M1 A1 m1 A1 (5)	(30 miles) (25 miles) CAO. May be implied in further working FT 'their 55' depends on M1 previously awarded and 'their total distance' is the sum of two derived distances If no marks, award SC2 for an answer of 50.7(69...) from (45×40 + 25×60)/(40 + 25) or equivalent

24*. 7a + 2g = 6(.)15 AND 5a + 8g = 9(.)19	B1	Both equations are required for the award of B1
Method to eliminate variable, e.g. equal coefficients and method to find second variable	M1	FT provided at least one equation is correct and the other is of equivalent difficulty. Allow 1 error in one term, not one with equal coefficients
First variable	A1	**a = 67(p)** or **a = (£ 0).67** or **g = 73(p)** or **g = (£ 0).73**
Second variable	A1	FT their first variable provided M1 previously awarded
(£)4.99	B1 (5)	CAO, not FT
25*. (Mass =) 2.4 × 13.4	M1	
32.16 (g)	A1 (2)	CAO, accept 32.2(g) from correct working