GCSE MARKING SCHEME

SUMMER 2018

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

INTRODUCTION

This marking scheme was used by WJEC for the 2018 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.

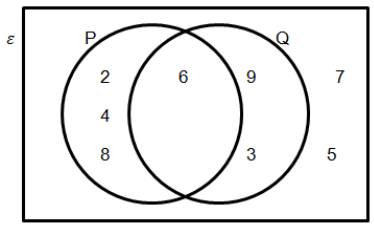
It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conference, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

Eduqas Summer 2018 C2 Foundation Tier	Mark	Comment
1. (£) 106.4(0) 25 (£)1.21 (£) 138.62	B1 B1 B1 B1 (4)	 FT 'their £106.40'
2. A = 9 (kg) B = 19.5 (kg) (A + B =) 28.5 (kg)	B1 B1 B1 (3)	Full marks will be awarded for unsupported answer of 28.5 (kg) in the answer space. FT 'their 9' + 'their 19.5'.
3. (a) Completes the table e.g. A (8 1) B 7 2 C 6 3 D 5 4	B2	Entries may be in a different order but the pairs must be correct (add up to 9). Award B1 for 2 correct pairs. Allow B1 for length and width in wrong order.
3. (b) identifies the 5 x 4 rectangle AND area is 20 (cm^2) with at least one other area correct.	B2 (4)	FT 'their greatest area' or associated letter, provided at least B1 awarded in (a). e.g. Area A = 8 (cm^2) Area B = 14 (cm^2) Area C = 18 (cm^2) Award B1 for identifying the correct rectangle or for sight of two correct areas
4. (a) 26 x 7.5 or 13 x 15 (195) or 13 x ¼ or 26/8 or equivalent 3 (hours) 15 (minutes)	M1 A1	May be seen in stages. An answer of 3.25 would imply M1.
4. (b) Assumption, e.g. 'each shirt takes the same time to iron', 'all shirts same size/type/etc' or 'doesn't take a break' or equivalent.	E1	
4. (c) Impact e.g. 'the time would change' or equivalent.	E1 (4)	Note that the time could increase or decrease. The impact must match the assumption. Acceptable responses include: 'It could increase the time taken' 'It could decrease the time taken' 'The time could increase or decrease' 'The time would increase or decrease' The word 'time' may not be seen.
5. (a) 13 and 17 30	B1 B1	 FT 'their 13' + 'their 17' provided that one of the numbers is prime.
5. (b) 75 and 25 1875	B1 B1 (4)	 FT 'their 75 x their 25' correctly evaluated. Numbers from the list.

6. (a) equilateral (triangle)	B1	
6. (b) 18 x 6 or equivalent = 108(cm)	M1 A1	Check the diagram.
6. (c) $^{1}/_{30}$	B1 (4)	
7. (a) $23a$	B1	
7. (b) Sight of ($2a$ +) 27b and states or implies 'no'.	B2 (3)	B1 for 'No' and a partially correct reason e.g. $2a$ + kb where k is not -3. This includes '-27b'
8.(a) Convincing working e.g. 1½lb = 16 + 8 = 24 oz 24 x 28 = 672 (g)	B2	Award B1 for sight of 24 or for 'their 16 + 8' x 28. The method could be seen in reverse, starting with 672(g) and ending with 1.5(lb).
8.(b) 672 ÷ 6 x 8 or equivalent = 896 (g)	M1 A1	M1 for a correct imperial answer (2lb or 32oz) May be seen in stages.
8.(c) 728 ÷ 28 (= 26oz) 26 ÷ 13 x 6 = 12 (people)	M1 M1 A1 (7)	Or equivalent. FT 'their 26' FT 'their 26' *Alternative method: 13 x 28 (= 364) M1* *728 ÷ 364 x6 or 2 x 6 M1* *=12 A1*
9. (a) 2016	B1	
9. (b) 7:6	B2	B1 for 63:54 Or B1 for 'their 63:54' correctly simplified. SC1 for an answer of 6:7
9. (c) 41 x 2500 or 54 x 2150 54 x 2150 - 41 x 2500 Or 41 x 2500 – 54 x 2150 13600(p) or (£)136 (£)136 AND spent more in 2015	M1 M1 A1 A1	Accept equivalent work in £ FT 'their 41' and 'their 54' provided that one is correct Digits '136' implies M2, for example 1.36 CAO. Allow -13600(p) or –(£)136 FT 'their 136' Do not accept place value errors
9. (d) 0.2 x 50(p) + 50 or equivalent = 60(p)	M1 A1 (9)	Or equivalent full method.
10.(a) 104/100 x 1240 = 1289.6	M1 A1	Or equivalent full method.
10.(b) '=' written in the box AND sight of 16.8 or 35 x 48 ÷ 100 or equivalent.	B2	B1 for sight of 16.8 or 35 x 48 ÷ 100 or equivalent with incorrect sign or missing sign.
10.(c) (100 x) 19 ÷ 24 (= 0.79166…) OR 0.75 x 24 (= 18) Seren (did better) with sight of either (0.)79(166…) or 18 as appropriate	M1 A1 (6)	

11.(a) π x 700 = 2199(.114858) (mm)	M1 A1	 Allow 700 π (mm) Accept answers in the range 2198 to 2200 (mm)
11.(b) 4800 (mm) = 4.8 (m)	B2 B1 (5)	B1 for sight of 1600 x 3 or equivalent Ignore place value errors for B1. FT 'their 4800' Award for appropriate conversion e.g 1600mm to 1.6m
12. (a) All angles drawn correctly Y7 | Y8 | Y9 | Y10 | Y11 54 | 72 | 81 | 90 | 63 All sectors labelled correctly	B3 B1	Allow tolerance of ±2° for all angles, Allow B3 if 5th angle is outside this tolerance B2 for 3 angles drawn accurately or for all angles calculated correctly, OR B1 for 2 angles drawn accurately or for 3 or 4 angles calculated correctly. Ignore any additional sectors created. SC2 for a pie chart with five correct sectors from their calculated angles, with labels correct. SC1 for a pie chart with 3 or 4 correct sectors from their calculated angles, with labels correct.
12. (b)(i) Indicates "yes" AND states or implies that the angle or area for German students is double that of Spanish. E.g. '160(°) is 2 x 80(°),	E1	
12. (b)(ii) Indicates "Cannot tell" AND explains that we don't know how many students are at the schools.	E1	Allow "no" with correct explanation.
12. (b)(iii) 120 ÷ 80 x 48 or 48 + ½ x48 = 72 (students)	M1 A1 (8)	
13. 280 + 0.12 x 280 or equivalent = (£) 313.6(0) (313.6(0) ÷ 8 =) (£)39.2(0) (each) or (39 x 8 =) (£)312 Decision e.g. 'Gordon is wrong as this needs rounding up to (£)40 so that they add at least 12%' or 'Gordon is wrong as they have added less than 12%'. '£39 is not enough as each needs to pay £39.20 (or more)'	M1 A1 B1 E1 (4)	 FT 'their 313.60' ÷ 8 FT 'their (£)313.6(0) or (£)312 or (£)39.20' with correct interpretation provided at least 2 marks previously awarded. You may see total 314÷8 or 320÷8 = 40. *Alternative method 1:* *39 x 8 = 312* *B1* *312 – 280 = 32* *M1* *32÷280x100 = 11.4(%)* *A1* *No, e.g. '11.4% is less than 12%'* *E1* *Alternative method 2:* *280÷8 = 35* *B1* *35 x 1.12 or equivalent* *M1* *(£)39.2(0)* *A1* *Gordon wrong because (£)39 is not enough E1*
14.(a) Translation 3 right and 2 down or $\binom{3}{-2}$	B1 B1	 Do not accept 3 *across* and 2 *down*.
14.(b) Correct reflection on the grid.	B2 (4)	B1 for a correct reflection but in a different horizontal mirror line or in the line x = 4 or sight of the line y = 4.

15. (a) 30÷2 = 15 (km/h)	M1 A1	
15. (b) Valid description, e.g. 'stopped' or equivalent	E1	
15. (c) (i)Between 11:30 and 12:00 (ii)Explain e.g. 'the line is steepest'	B1 E1	
15. (d) Joining (12:00,50) to (13:00,60) Joining (13:00,60) to (14:00, 90)	B1 B1 (7)	This section may be a straight line or curved. FT 'their first line' If no marks, award SC1 for (12:00,50) to (13:00,40) to (14:00, 10)
16. Unambiguously matches the graphs to the equations. Graph 2 – $y = x + 1$ Graph 3 – $y = 1 - x^2$ Graph 4 – $y = 1 - x$ Graph 5 – $y = x^2 - 1$	B2 (2)	Award B1 for 2 or 3 correct unambiguously matched graphs.
17.(a) indicates 12.5×10^7, 12000000 AND 7 million	B1	
17.(b) 1.3×10^5	B2 (3)	Award B1 for 1.3×10^n or 130000 or $A \times 10^5$ or 13×10^4.
18.(a)  	B2	Award B1 for identifying 2,3,5,6 AND placing two or three numbers correctly.
18.(b) $^2/_8$ or equivalent	B2 (4)	ISW B1 for 2/n or m/8 in a fraction <1 or '2 out of 8' or '2 in 8' FT their Venn diagram.

19*.(a) Indicates or implies 'No' or 'Don't know' with a reason, e.g. 'No, not all scores are equally likely', 'Don't know, as not enough throws to tell', 'No as it shows fewer 2s and 5s', "No, high numbers of 1 and 6', 'No, appears to be biased towards 1 and 6'	E1	Accept, e.g. 'No, should have equal amounts for each number', Allow, e.g. 'Don't know, dice are random so there could be variety in results', 'No, if fair all would be 1/6'
19*.(b) $\frac{11}{120}$	B2	B1 for 11/… or $\frac{4 + 5 + 2}{40 + 40 + 40}$
19*.(c) $\frac{37}{120}$ (× 480) 148	M1 A1 (5)	Accept for $\frac{\text{'their 4+5+4+8+8+8'}}{\text{'their 40 + 40 + 40'}}$ (× 480) CAO A final answer of 148/480 is M1, A0
20*.(a) (a - 2)(a + 7)	B2	B1 for (a … 2)(a … 7)
20*.(b) (b + 5)(b – 5)	B1	CAO
20*.(c) d/5 = 12 – 2 or d/5 = 10 or d + 2 × 5 = 12 × 5 d = 50	M1 A1 (5)	 CAO. Accept embedded answers Mark final answer *If no marks award SC1 for an answer of d = 70 from d/5 = 12 + 2*
21*. (65 + 14 + 9) × 27 ÷ 9 (=88 × 3) 264 (kg) Conclusion that it is not possible as 264 > 250, e.g. 'No as 264kg is greater than ¼ tonne'	M1 A1 E1 (3)	 FT provided M1 awarded for an appropriate conclusion. Do not accept ¼ tonne as any amount other than correctly giving 250 kg, however it is not essential to state this conversion.
22*.(a) Midpoints 10, 30, 50, 70, 90 1×10+8×30+9×50+7×70+6×90 ÷ 31 55.8(…cm)	B1 M1 m1 A1	 FT 'their midpoints' provided these are at the bounds or within the groups (10 + 240 + 450 + 490 + 540 = 1730) Accept 56(cm) from correct working
22*.(b) Argument presented to include that (some) other groups could have snowfall towards the lower end of the group, e.g. 'group 20 to 40 (cm) may have actual snowfall between 21 and 23 cm'	E1 (5)	Accept 'the mean changes by about 2(.3 cm), so still about the same' Allow, e.g. 'Would not impact on the mean much' Do not allow an argument presented saying 'do not know the actual snowfall for the other groups' Do not accept an argument based on the reason for using midpoints without further clarification

23*.(a) $x^2 = 96.05$ or $(x =) \sqrt{96.05}$ 9.8(cm)	M2 A1	M1 for $(x^2 =) 4.7^2 + 8.6^2$ FT from M1 for the correctly evaluated square root of 'their 96.05' provided 'their answer' > 8.6 (cm)
23*.(b) $(y=) \sin^{-1} 8.6/12.1$ or $\sin^{-1}0.7107…$ 45(.295…°) or 45.3(°)	M2 A1 (6)	M1 for $\sin y = 8.6/12.1$ ISW, i.e. do not accept 45.2(°) unless at least 45.29(5…°) seen previously Do not accept 45° without further explanation
24*. 12 × 10.48 ÷ 19.32 (=6.509… g) 12 – 6.5(….) 5.49(06….g) or 5.5 (g)	M2 M1 A1 (4)	M1 for 12 ÷ 19.32 (= 0.6211…) Accept 6.5(…) – 12 FT 'their 12 × 10.48 ÷ 19.32' provided < 12 CAO, allowing also a negative difference
25*. 6c + 3r = 24(.)60 **AND** 5c + 2r = 18(.)60 Method to solve simultaneous equations, allow an error but not in the equated variable with an attempt to subtract First variable correct Method to calculate second variable Second variable correct (40 – (7c+5r) = 40 – 34.40 =) (£)5.6(0) or 560(p)	B1 M1 A1 m1 A1 B1 (6)	Both equations given, c & r may be other letters, words are accepted FT provided at least one equation is correct and consistent place value, with equivalent level of difficulty Allow 1 error in one term, not one with equal coefficients Accept in £ or p **Curtain £2.20** **Rail £3.80** FT their first variable provided M1 previously awarded Accept in £ or p FT 'their c' and 'their r' provided M1 previously awarded If units are given they must be correct *Unsupported answers, no marks*
26*. Explanation, e.g. '$1m^2 = 10\,000cm^2$', 'as this is area not length', '$1m^2$ is 100cm by 100cm'	E1 (1)	Accept a diagram showing 1m by 1m is 100cm by 100cm