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# **GCSE MARKING SCHEME**

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**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.

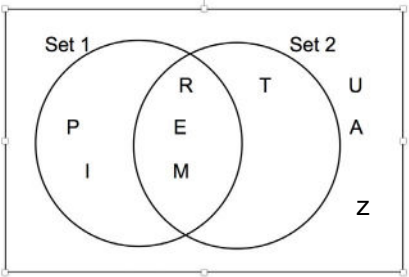
WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

**GCSE MATHEMATICS**  
**COMPONENT 2 – FOUNDATION TIER**  
**SUMMER 2019 MARK SCHEME**

	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) $490 \div 35$ OR $4.90 \div 0.35$ = 14	M1 A1	Allow M1 for $490 \div 0.35$ or $4.90 \div 35$ Accept embedded answer e.g. $35 \times 14 = 490$
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) $0.56 \times 850$ or equivalent method = 476	M1 A1	
3(b) $0.07 (x 1250 =87.5)$	E1	Allow fully correct methods as 'explanations'
3(c) $(100 \times) 9 \div 24 (=0.375)$ OR $0.36 \times 24 (=8.64)$ '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 $85^\circ$ .	M2  A1  (8)	Award M1 for $72 + 98 + 56 (=226)$ + <b>two</b> of 85 or 87 or 47. Implied by sight of 358 or 398 or 134  <i>Alternative method 1:</i> $72 + 98 + 56 + 85 + 87 + 47 - 360$ M2 $= 85$  A1 <i>Alternative method 2:</i> $445 - 360$ M2 $= 85$ A1 <i>Sight of '445' and correct answer will be M2A1</i>
5(a) $10 \times 2.6$ OR $14 \times 2.6$ 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 $3 \times 3$ square  (ii) $9 \times 2.6^2$ or $(3 \times 2.6)^2$  $60.84(\text{cm}^2)$	B1  M1  A1  (6)	Accept any reasonable attempt at a $3 \times 3$ square.
6(a) 101 (miles)	B1	
6(b) Manchester and York	B1	Accept in either order.
6(c) $(204 + 34) - 216$ $= 22(\text{miles})$	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) $(15 \times -23 =) -345$	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) $(1/6 \text{ of } 24 =) 4 \text{ (times)}$	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) $1 - [0.33 + 0.25] (= 0.42)$  $\div 3$ 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) $3 \times 85.75 \div 7$ or $4 \times 85.75 \div 7$ 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) $2 \times 0.7 \times (\text{£})9.90$ or equivalent $= (\text{£}) 13.86$  (Shop B price would be) $9.20 + 0.5 \times 9.20$ $= (\text{£})13.8(0)$  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)	

<p>13(a)</p> 	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 $\frac{3}{n}$ or $\frac{m}{9}$ 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) $(25 \times 2.44 - \text{'their } 42' = ) 19$	B2  (5)	FT 'their (a)(ii)'. B1 for sight of 61
15(a) 0.38	B2	B1 for 0.37(647.....)
15(b) $4.5 \times 10^{14}$	B1 (3)	
16. (width =) $54 \div 12 (=4.5)$ $\times 3$ 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 = $36 \div 16 (=2.25)$ = 2h15min	M1 A1	CAO
17(c) $180 \div 24$  $= 750(\text{cm/h})$ <span style="float: right;">x100</span>	M1 M1 A1  (6)	These calculations can be completed in either order. CAO  <i>Note: Digits '75' would indicate first M1 18000 (cm) would indicate 2<sup>nd</sup> M1</i>
18*. $13 \times 6 - 17^3$ or $26 \times 3 - 17^3$ or $39 \times 2 - 17^3$  $1.34 \times 232$ <span style="float: right;"><math>0.82 \times 4530</math></span>  -4835 and 310.88 and 3714.6	B1  B1 B1  B1  (4)	Do not accept $134\% \times 232$  CAO. Independent mark <i>Misreads: e.g. <math>5 \times 13 - 17^3 = -4848</math> is B0, but FT as misread for possible final B1</i>

<p>19*(a) Mid points: 15, 25, 35, 45</p> $15 \times 5 + 25 \times 20 + 35 \times 23 + 45 \times 52$ $= 75 + 500 + 805 + 2340 = 3720$ $\div 100$ $37(.2\text{mm})$	<p>B1</p> <p>M1</p> <p>m1</p> <p>A1</p>	<p>FT provided 'their midpoints' within the 'bounds' inclusive</p> <p>Unsupported 37.2, award all 4 marks</p>
<p>19*(b) <math>40 \leq x &lt; 50</math></p>	<p>B1</p> <p>(5)</p>	<p>Accept any unambiguous indication</p>
<p>20*. <math>\sin f = 8.4/12.3</math></p> $(f =) 43(.07\dots^\circ)$	<p>M1</p> <p>A2</p> <p>(3)</p>	<p>A1 for <math>(f =) \sin^{-1}0.68(29\dots)</math></p>
<p>21*. <math>2500 \times 0.84^n</math> with any value of n from n=1 to n=10 or equivalent</p> <p><math>2500 \times 0.84^n</math> 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</p> $6 \text{ (years)}$	<p>M1</p> <p>m1</p> <p>A1</p> <p>(3)</p>	<p><math>(2500 \times 0.84 = \text{£}2100)</math>  <math>(2500 \times 0.84^2 = \text{£}1764)</math>  <math>(2500 \times 0.84^3 = \text{£}1481.76)</math>  <math>(2500 \times 0.84^4 = \text{£}1244.6784)</math>  <math>(2500 \times 0.84^5 = \text{£}1045.529\dots)</math>  <math>(2500 \times 0.84^6 = \text{£}878.245\dots)</math>  <math>(2500 \times 0.84^7 = \text{£}737.725\dots)</math>  <math>(2500 \times 0.84^8 = \text{£}619.689\dots)</math>  <math>(2500 \times 0.84^9 = \text{£}520.539\dots)</math>  <math>(2500 \times 0.84^{10} = \text{£}437.253\dots)</math></p> <p>CAO  If no working, award SC2 for an answer of 6 (years)</p>
<p>22*(a) <math>3x^2 + 18xy + 5xy + 30y^2</math></p> $3x^2 + 23xy + 30y^2$	<p>B2</p> <p>B1</p>	<p>B1 for any 2 terms correct</p> <p>FT for equivalent level of difficulty, providing at least 3 terms to consider and like terms to collect</p>
<p>22*(b) <math>(x - 9)(x - 4)</math></p>	<p>B2</p>	<p>B1 for <math>(x \dots 9)(x \dots 4)</math></p>
<p>22*(c) <math>(w + 9)(w - 2) = 0</math></p> $w = -9 \text{ with } w = 2$	<p>B2</p> <p>B1</p> <p>(8)</p>	<p>B1 for <math>(w \dots 9)(w \dots 2)</math></p> <p>STRICT FT from 'their pair of brackets'</p> <p><i>Alternative:</i></p> $(w =) \{-7 \pm \sqrt{(7^2 - 4 \times 1 \times -18)}\} / 2 \quad M1$ $(=) (-7 \pm \sqrt{121}) / 2 \quad A1$ $w = -9 \text{ with } w = 2 \quad A1$ <p><i>Accept trial &amp; improvement method only if both solutions are found correctly for B3</i></p>
<p>23*. (First distance) <math>45 \times 40 \div 60</math></p> <p>(Second distance) <math>60 \times 25 \div 60</math></p> <p>(Total distance) <math>55</math> (miles)</p> <p>(Overall average speed) <math>55 \div (65/60)</math></p> <p>or equivalent in stages</p> <p><math>50.7(69\dots\text{mph})</math> or <math>50.8(\text{mph})</math> or <math>51(\text{mph})</math></p>	<p>M1</p> <p>M1</p> <p>A1</p> <p>m1</p> <p>A1</p> <p>(5)</p>	<p>(30 miles)</p> <p>(25 miles)</p> <p>CAO. May be implied in further working</p> <p>FT 'their 55' depends on M1 previously awarded and 'their total distance' is the sum of two derived distances</p> <p>If no marks, award SC2 for an answer of <math>50.7(69\dots)</math> from <math>(45 \times 40 + 25 \times 60) / (40 + 25)</math> or equivalent</p>

<p>24*. <math>7a + 2g = 6(\cdot)15</math> AND <math>5a + 8g = 9(\cdot)19</math></p> <p>Method to eliminate variable, e.g. equal coefficients and method to find second variable</p> <p>First variable</p> <p>Second variable</p> <p>(£)4.99</p>	<p>B1</p> <p>M1</p> <p>A1</p> <p>A1</p> <p>B1 (5)</p>	<p>Both equations are required for the award of B1</p> <p>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</p> <p><b>a = 67(p) or a = (£ 0).67</b> or <b>g = 73(p) or g = (£ 0).73</b></p> <p>FT their first variable provided M1 previously awarded</p> <p>CAO, not FT</p>
<p>25*. (Mass =) <math>2.4 \times 13.4</math> 32.16 (g)</p>	<p>M1</p> <p>A1 (2)</p>	<p>CAO, accept 32.2(g) from correct working</p>