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# **GCSE MARKING SCHEME**

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**SUMMER 2018**

**GCSE (NEW)  
MATHEMATICS – UNIT 2 (FOUNDATION TIER)  
3300U20-1**

## **INTRODUCTION**

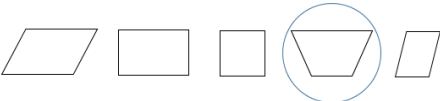

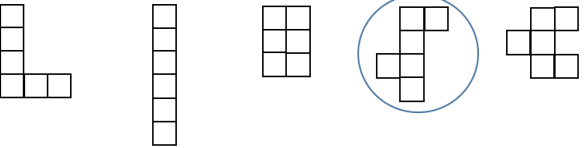
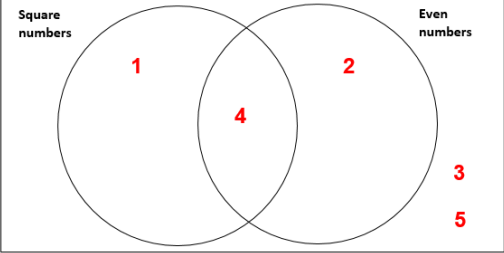
This marking scheme was used by WJEC for the 2018 examination. It was finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conference was held shortly after the paper was taken so that reference could be made to the full range of candidates' 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.

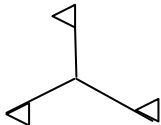
It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conference, teachers may have different views on certain matters of detail or interpretation.

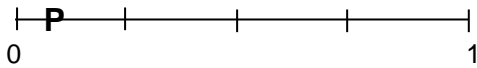
WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

# WJEC GCSE MATHEMATICS (NEW)

## SUMMER 2018 MARK SCHEME

GCSE Mathematics Unit 2: Foundation Tier Summer 2018	Mark	Comments				
1. <table style="margin-left: 100px; border: none;"> <tr> <td style="padding-right: 20px;">4.67</td> <td>4.15</td> </tr> <tr> <td style="padding-right: 20px;">39</td> <td>3.22</td> </tr> </table>	4.67	4.15	39	3.22	B1 B1 B1 B1	Condone spurious units.
4.67	4.15					
39	3.22					
2.(a) 2450	B1					
2.(b) 9 999	B1					
3. (£)35 ÷ (£)2.8(0) 12 (books) <p style="text-align: center;">Organisation and Communication.</p> <p style="text-align: center;">Accuracy of writing.</p>	M1 A1  OC1   W1	M1 A0 for a final answer of 12.5.  For OC1, candidates will be expected to: <ul style="list-style-type: none"> <li>• present their response in a structured way</li> <li>• explain to the reader what they are doing at each step of their response</li> <li>• lay out their explanation and working in a way that is clear and logical</li> </ul> For W1, candidates will be expected to: <ul style="list-style-type: none"> <li>• show all their working</li> <li>• make few, if any, errors in spelling, punctuation and grammar</li> <li>• use correct mathematical form in their working</li> <li>• use appropriate terminology, units, etc</li> </ul>				
4.(a) 	B1					
4.(b) 	B1					
4.(c) 	B1					
5. 	B2	B2 for all fully correct Award B1 for 3 or 4 correct <i>Any duplicates are marked as incorrect.</i>				

6.(a)(i) Add 5 (to the previous term)	B1	Accept +5, goes up in 5.
6.(a)(ii) Multiply (the previous term) by 2	B1	Accept $\times 2$ , times 2, double.
6.(b) 1(.0)	B1	
7.(a) 6.76 or equivalent	B1	Accept $6\frac{19}{25}$ and $\frac{169}{25}$ . Ignore <u>subsequent</u> rounding.
7.(b) 4.6 or equivalent	B1	Accept $4\frac{3}{5}$ and $\frac{23}{5}$ . Ignore <u>subsequent</u> rounding.
8.(a) 180 ( $^{\circ}$ )	B1	Check diagram. Answer line takes precedence.
8.(b) (y=) $180 - 29 - 96$ or $360 - 180 - 29 - 96$ = 55 ( $^{\circ}$ )	M1 A1	FT their 180 from (a) C.A.O.
9. $(17 - 3) = 14$  $(14 \div 5) = 2.8$	B1  B1	Accept embedded (unsupported) answers e.g. $14 + 3 = 17$ $2.8 \times 5 = 14$ . FT their derived 14. Accept $\frac{14}{5}$ or $2\frac{4}{5}$ or equivalent. To be awarded the second B mark, candidates must provide their exact (unrounded) answer.
10.(a) $\frac{4}{5} \times 134$ or equivalent  = 107.2 or $107\frac{1}{5}$ ISW	M1  A1	M1 for $134 - (134 \div 5)$  M1 A0 for $536 \div 5$
10.(b) $0.3(0) \times 275$ or equivalent = 82.5 ISW	M1 A1	Award SC1 for an unsupported answer of 82 or 83.
11. 2, 5, 7, 7 in any order.	B3	B2 for satisfying 2 of the 3 conditions B1 for satisfying 1 of the 3 conditions Conditions to check: Mode 7, Range 5, Median 6 There must be 4 numbers written otherwise B0.
12.(a) 28	B1	Mark final answer. Allow embedded answer. B1 for $28/4$ or $28/4 = 7$ with <u>no</u> further work. B0 for $28/4$ followed by ' $x \neq 28$ '.
12.(b) $4f + 3g$	B2	Must be in an expression for B2. B1 for sight of (+)4f OR B1 for sight of (+)3g. Mark final answer.
12.(c) $5 \times 4 + 2q = 24.6$ or equivalent. $2q = 4.6$ $(q =) 2.3$	M1 A1 A1	Implies M1. FT only from $2q = k$ . Mark final answer. Allow 3 marks for embedded answer BUT Only two marks if contradicted by ' $q \neq 2.3$ '. If <u>no marks gained</u> , allow SC1 for sight of 20 (not 20p) <u>from</u> $5 \times 4$ OR allow SC1 for $q = 22.3$
13.(a) Two dots placed at suitable points to ensure rotational order 2.	B1	Mark correct intention. B0 if extra dots offered.
13.(b) Three dots placed at suitable points to ensure rotational order 3.	B1	Mark correct intention. B0 if extra dots offered.
13.(c) 	B1	

<p>14.(a)      (<i>Summer</i>      <i>Cottage</i>      <i>Train</i>)</p> <p>Summer      Cottage      Bus  Summer      Cottage      Car  Summer      Hotel      Train  Summer      Hotel      Bus  Summer      Hotel      Car  Winter      Cottage      Train  Winter      Cottage      Bus  Winter      Cottage      Car  Winter      Hotel      Train  Winter      Hotel      Bus  Winter      Hotel      Car</p>	B3	For all other 11 different combinations. Ignore repeats. B2 for 8, 9 or 10 other different combinations. B1 for 5, 6 or 7 other different combinations.
<p>14.(b)</p> 	B1	P must be positioned strictly $> 0$ and $< 0.25$ . C.A.O. Accept any indication for position of P.
<p>15. Attempt to display any 3 or 4 in a common format. e.g. all decimals or all as percentages or all with a common denominator or calculation using a common value.</p> <p><u>Three</u> values accurate. 13/50 or equivalent AND all 4 correct.</p>	M1  A1 A1	Method mark is for the attempt. e.g. attempt to show any three as 0.25, 0.2(0), 0.28, 0.26.      OR 25(%), 20(%), 28(%), 26%      OR 25/100, 20/100, 28/100, 26/100      OR Say, $\frac{1}{4} \times 25 = 6.25$ , $\frac{1}{5} \times 25 = 5$ , $\frac{7}{25} \times 25 = 7$ , $\frac{13}{50} \times 25 = 6.5$
<p>16.(a) <math>a + c + s + q = 360^\circ</math></p>	B1	
<p>16.(b) <math>a + b + c + d + e = 360^\circ</math></p>	B1	
<p>17. An attempt to find the total of the four time periods.</p> <p>(Sum of time periods =) 18(hr) 56(min)      OR      1136(min)    <math>\div 4</math></p> <p>= 4 hours 44 minutes</p>	M1  A1 m1  A1	Allow any convincing attempt. A total has to be found. e.g. sight of 18.16 or 18h 16min etc. Not enough to simply list e.g. $5 \times 20 + 2 \times 44 + 6 \times 18 + 4 \times 34$
<p><u>Alternative method</u> Attempt to add time periods as 'hours + min' 17hours (+) 116 minutes    <math>\div 4</math></p> <p>4 hours 44 minutes</p>	M1 A1 m1  A1	C.A.O. Allow 18.93(...)(hr) but mark final answer. FT for m1, <u>only if</u> 'their sum of time periods' is between 17h (1020min) and 21h (1260min) inclusive.
<p>Allow FT A1 <u>only if</u> the sum of their time period is x hrs y min where x is <u>not</u> a multiple of 4 and <math>y \neq 0</math>. OR the sum of their time period is t minutes, where t is <u>not</u> a multiple of 60. Sight of 284 (min) implies M1A1m1.</p> <p><u>Note 1: If time is incorrectly added as 'decimals'.</u> 18.16 or 18h 16min is M1A0. Further work of <math>18.16 \div 4 = 4.54</math> (or 4h54m) is m1A0 BUT <math>18h 16m \div 4 = 4h 34m</math> is m1A1 (FT)</p> <p><u>Note 2: Incorrect use of calculator.</u> e.g. M1A0m1A0 for sight of 930.5(min) (From <math>320 + 164 + 378 + 274 \div 4</math>)</p>		
<p>FT for m1, <u>only if</u> 'their sum of time periods' is between 17h (1020min) and 21h (1260min) inclusive.</p>		

<p>18. (Volume A =) <math>5 \times 5 \times 5 \text{ (cm}^3\text{)}</math> OR (Volume B =) <math>4 \times 4 \times 5 \text{ (cm}^3\text{)}</math></p> <p>AND (Volume A =) <math>125 \text{ (cm}^3\text{)}</math> (Volume B =) <math>80 \text{ (cm}^3\text{)}</math></p> <p>(Volume of B as a percentage of the volume of A)  <math display="block">= \frac{80}{125} (\times 100\%)</math> <math display="block">= 64(\%)</math></p>	<p>M1</p> <p>A1</p> <p>M1</p> <p>A1</p>	<p>For use of <math>\text{Vol} = l \times b \times h</math> with <u>either</u> A or B.</p> <p>C.A.O. for <u>both</u> volumes. One correct implies previous M1.</p> <p>F.T. their derived volumes.</p> <p>An answer of 64(%) gains all four marks.</p> <p><i>Allow marks if they work with base areas (as heights are equal).</i></p>
<p><i>Alternative method</i> (Where <math>125 \text{ cm}^3</math> and <math>80 \text{ cm}^3</math> not shown.)  <math>5 \times 5 \times 5 \text{ (cm}^3\text{)}</math> OR <math>4 \times 4 \times 5 \text{ (cm}^3\text{)}</math>  <math display="block">\frac{4 \times 4 \times 5 (\times 100\%)}{5 \times 5 \times 5}</math> <math display="block">= 64(\%)</math></p>	<p>M1</p> <p>M2</p> <p>A1</p>	
<p>19. <math>3(4x - 7) = 27</math> or equivalent  <math>4x = 16</math> or <math>12x = 48</math> or equivalent  <math>x = 4</math></p>	<p>M1</p> <p>A1</p> <p>A1</p>	<p>M1 for <math>4x - 7 = 27/3</math></p> <p>FT from <math>ax = b</math>. Allow 3 marks for embedded answer BUT Only two marks if contradicted by '<math>x \neq 4</math>'.</p> <p>Unsupported answer of <math>x = 4</math> gains all three marks. If no marks gained allow SC1 for sight of 9.</p>
<p>20.(a) <math>1 - 0.36 - 0.12 - 0.24</math>  <math display="block">= 0.28</math></p>	<p>M1</p> <p>A1</p>	
<p>20.(b) <math>522 \times \frac{1}{3}</math> or equivalent (e.g. <math>522 \div 0.36 \times 0.12</math>)  <math display="block">= 174</math></p>	<p>M1</p> <p>A1</p>	