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# **GCSE MARKING SCHEME**

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**AUTUMN 2021**

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

## **INTRODUCTION**

This marking scheme was used by WJEC for the 2021 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**  
**AUTUMN 2021 MARK SCHEME**

Unit 2: Foundation Tier	Mark	Comments																
1.(a) 5169	B1																	
1.(b) 6502	B1																	
1.(c) 186	B1																	
1.(d) 45	B1																	
2.(a) 5, 5, 5, 5	B1																	
2.(b) Exactly two 3s and any other two numbers	B1	Accept in any order.																
2.(c) Exactly one 2 and any other three numbers	B1	Accept in any order.																
3.(a) 40 065	B1																	
3.(b) 5400	B1																	
4.(a) rhombus	B1																	
4.(b) equilateral triangle	B1																	
5. <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;"><b>71</b></td> <td style="text-align: center;">60</td> <td style="text-align: center;">78</td> <td style="text-align: center;"><b>41</b></td> </tr> <tr> <td style="text-align: center;">26</td> <td style="text-align: center;"><b>85</b></td> <td style="text-align: center;">27</td> <td style="text-align: center;">112</td> </tr> <tr> <td style="text-align: center;">95</td> <td style="text-align: center;">105</td> <td style="text-align: center;"><b>42</b></td> <td style="text-align: center;">8</td> </tr> <tr> <td style="text-align: center;">58</td> <td style="text-align: center;">0</td> <td style="text-align: center;">103</td> <td style="text-align: center;"><b>89</b></td> </tr> </table>	<b>71</b>	60	78	<b>41</b>	26	<b>85</b>	27	112	95	105	<b>42</b>	8	58	0	103	<b>89</b>	B3	B2 for 3 rows or 3 columns with a total of 250. B1 for 1 or 2 rows or 1 or 2 columns with a total of 250.
<b>71</b>	60	78	<b>41</b>															
26	<b>85</b>	27	112															
95	105	<b>42</b>	8															
58	0	103	<b>89</b>															
6.(a) 98	B1																	
6.(b) Subtract 13 (from the previous term)	B1	Accept -13, goes down in 13s, etc.																
6.(c) $x-2$ (years old)	B1	Mark final answer.																
7.(a) Sum of numbers (262)  Sum of numbers $\div 4$ 65.5 or equivalent	M1  m1 A1	Allow for an unsupported value between 173 and 351. Award this m1 for 'their sum' $\div 4$ CAO. Allow 131/2.  If no marks awarded, allow SC1 for (64 + 89 + 83 + 26 $\div 4 =$ ) 242.5 or equivalent.																
7.(b) (65.5 + 1 =) 66.5	B1	F.T. 'their mean' from (a). Allow 133/2.																
8.(a) 23.04	B1	Accept $23 \frac{1}{25}$ or equivalent e.g. 576/25																
8.(b) 7.9	B1	Accept $7 \frac{9}{10}$ or equivalent e.g. 79/10																
8.(c) $0.04 \times 325$ or equivalent = 13 ISW	M1 A1																	
9. (Oliver's number is) 90	B3	B2 for a final answer <u>between 40 and 95</u> satisfying 2 of the 3 conditions. (45, 54, 60, 72) B1 for a final answer <u>between 40 and 95</u> satisfying only 1 of the 3 conditions. (40, 42, 44, 46, 48, 50, 52, 56, 58, 62, 63, 64, 66, 68, 70, 74, 75, 76, 78, 80, 81, 82, 84, 86, 88, 92, 94)																
OC Organisation and Communication.	OC1	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> <li>• write a conclusion that draws together their results and explains what their answer means</li> </ul>																

10. (-2, 1)		B2	B1 for: <ul style="list-style-type: none"> <li>one correct coordinate, or</li> <li>a clear indication of the correct position of the midpoint, or</li> <li>the correct coordinates reversed.</li> </ul>
11.(a)	$7x = 14$ $x = 2$	B1 B1	FT from $7x = k$ . Accept $x = k/7$ (but, if on FT $k$ is a multiple of 7, final answer must be given as a whole number.) B1B0 for ' $x = 14/7$ '  An evaluated FT for $k \div 7$ must be rounded or truncated to at least 2dp. e.g. $7x = 8$ (B0) followed by, $x = 8 \div 7$ (B0) $x = 8/7$ (B1), $x = 1\frac{1}{7}$ (B1), $x = 1.14$ (B1), $x = 1.1$ (B0)  Mark final answer. Allow 2 marks for embedded answer BUT only 1 mark if contradicted by $x \neq 2$ .
W	Accuracy of writing.	W1	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>
11.(b)	10	B2	C.A.O. B1 for sight of 17.4 OR -7.4 Do not accept 17.4f nor -7.4g Do <u>not</u> treat the use of 3.7 for -3.7 as a misread.
12.	(Total number of paper clips =) $200 \times 440 \times n$ where $320 \leq n \leq 330$ .  Correct evaluation.  (To the nearest ten million) 30 000 000 (paper clips)	M2  A1  B1	M1 for $200 \times n$ OR $440 \times n$ where $320 \leq n \leq 330$ . Allow use of 400 or 450 for 440. <i>Note</i> If $n$ taken to be 225 or 425 treat as a misread and allow M2 but penalise -1 from any further A1, B1 marks gained. A1 CAO from their numbers if M2 gained. ( $n=320$ gives 28 160 000, $n=325$ gives 28 600 000, $n=330$ gives 29 040 000.) B1 FT 'their evaluation' if greater than 5 million. A final answer of 30 million implies M2A1B1. Allow M2A0B0 for an unsupported final answer of 28 000 000 or 29 000 000.
13.(a)	3	B1	If no answer seen, check table.
13.(b)	15	B1	If no answer seen, check table.
14.(a)	(0)7:45 23 (March)	B2	B1 for each. B0 for (0)7:45 p.m.
14.(b)	Sight of 5 miles $\equiv$ 8 km or equivalent.  Shows 15 miles to be 24 km AND a valid statement e.g. 'yes (it's nearly 25 km)', 'no (it's only 24 km)'.	B1  B1	Allow a more accurate conversion (5 miles $\equiv$ 8 to 8.05 km). Do not accept 3 miles $\equiv$ 5 km B1 '15 miles is 24 km' with no statement is B1B0. Accept a one word decision of 'Yes' or 'No' as a statement.
<i>Alternative method</i>	Sight of 8 km $\equiv$ 5 miles or equivalent.  Shows 25 km to be 15.625 miles AND a valid statement e.g. 'yes (it's just over 15 miles)', 'no (it's over 15 miles)'.	B1  B1	Allow a more accurate conversion (8 km $\equiv$ 4.97 to 5 miles). Do not accept 5 km $\equiv$ 3 miles B1 '25 km is 15.625 miles' with no statement is B1B0. Accept a one word decision of 'Yes' or 'No' as a statement.

<p>15. Correct strategy of <math>\sqrt{(\text{Area ABCD} - 32)}</math>          (Area ABCD =) 81 (cm<sup>2</sup>)          (Area PQRS = 81 - 32 =) 49 (cm<sup>2</sup>)          (PQ = <math>\sqrt{49}</math> =) 7 (cm)</p>	<p>S1 B1 B1 B1</p>	<p>FT 'their stated area of ABCD' - 32.          FT <math>\sqrt{\text{'their stated area of PQRS'}}</math> but not <math>\sqrt{32}</math> or <math>\sqrt{9}</math>          A final answer of 7(cm) gains all four marks.          May be seen on the diagram.          (FT answers must be rounded or truncated to 1dp or more)</p>
<p>16.(a) 1.442</p>	<p>B2</p>	<p>B1 for sight of 1.44(1.....) or 1.44(2.....)</p>
<p>16.(b) 191</p>	<p>B3</p>	<p>B2 for sight of 190(.5.....) or 190.6          B1 for sight of 280.</p>
<p>17. (P(Gold) =) <math>1 - 0.68 - 0.22</math>  <math>= 0.1</math>          22 people choose silver AND 10 people choose gold            (Profit =) <math>100 \times (\pounds)2 - 22 \times (\pounds)3 - 10 \times (\pounds)8</math>  <math>= (\pounds)54</math></p>	<p>M1 A1 B1  M1 A1</p>	<p>May be seen in the table.          FT <math>100 \times \text{'their } 0.1\text{'}</math>. The 10 implies previous M1A1.          The 22 and 10 may be seen in further work.          FT 'their stated number of winners (silver and gold)'.</p>
<p><u>Alternative method 1</u>          (P(Gold) =) <math>1 - 0.68 - 0.22</math>  <math>= 0.1</math>          22 people choose silver AND 10 people choose gold            (Profit =) <math>68 \times (\pounds)2 - 22 \times (\pounds)1 - 10 \times (\pounds)6</math>  <math>= (\pounds)54</math></p>	<p>M1 A1 B1  M1 A1</p>	<p>May be seen in the table.          FT <math>100 \times \text{'their } 0.1\text{'}</math>. The 10 implies previous M1A1.          The 22 and 10 may be seen in further work.          FT 'their stated number of winners (silver and gold)'.</p>
<p><u>Alternative method 2.</u>          (P(Gold) =) <math>1 - 0.68 - 0.22</math>  <math>= 0.1</math>          (Profit per game =) <math>(\pounds)2 - 0.22 \times (\pounds)3 - 0.1 \times (\pounds)8</math>  <math>= (\pounds)0.54</math>          (Total profit = <math>\pounds 0.54 \times 100</math> =) <math>(\pounds)54</math></p>	<p>M1 A1 M1 A1 B1</p>	<p>May be seen in the table.          FT 'their 0.1'.          FT 'their derived <math>\pounds 0.54</math>'.</p>
<p><u>Alternative method 3.</u>          (P(Gold) =) <math>1 - 0.68 - 0.22</math>  <math>= 0.1</math>          (Profit per game =) <math>0.68 \times (\pounds)2 - 0.22 \times (\pounds)1 - 0.1 \times (\pounds)6</math>  <math>= (\pounds)0.54</math>          (Total profit = <math>\pounds 0.54 \times 100</math> =) <math>(\pounds)54</math></p>	<p>M1 A1 M1 A1 B1</p>	<p>May be seen in the table.          FT 'their 0.1'.          FT 'their derived <math>\pounds 0.54</math>'.</p>