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# **GCSE MARKING SCHEME**

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**AUTUMN 2024**

**GCSE  
MATHEMATICS  
UNIT 1 – FOUNDATION TIER  
3300U10-1**

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## About this marking scheme

The purpose of this marking scheme is to provide teachers, learners, and other interested parties, with an understanding of the assessment criteria used to assess this specific assessment.


This marking scheme reflects the criteria by which this assessment was marked in a live series and was finalised following detailed discussion at an examiners' conference. A team of qualified examiners were trained specifically in the application of this marking scheme. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners. It may not be possible, or appropriate, to capture every variation that a candidate may present in their responses within this marking scheme. However, during the training conference, examiners were guided in using their professional judgement to credit alternative valid responses as instructed by the document, and through reviewing exemplar responses.

Without the benefit of participation in the examiners' conference, teachers, learners and other users, may have different views on certain matters of detail or interpretation. Therefore, it is strongly recommended that this marking scheme is used alongside other guidance, such as published exemplar materials or Guidance for Teaching. This marking scheme is final and will not be changed, unless in the event that a clear error is identified, as it reflects the criteria used to assess candidate responses during the live series.

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**WJEC GCSE MATHEMATICS**  
**AUTUMN 2024 MARKING SCHEME**

<b>GCSE Mathematics Unit 1: Foundation Tier</b>	Mark	Comments
1(a) Correct position of midpoint	B1	Accept correct position $\pm 2$ mm
1(b) Perpendicular line drawn through the point <i>K</i>	B1	Tolerance $\pm 2^\circ$
2(a) 30 000 or thirty thousand or 30 thousand	B1	ISW Accept 'ten thousands' or 'tens of thousands' Do not accept 10 000 or 'ten thousand'.
2(b) 1364	B1	
2(c) 382	B1	
3(a)        grams	B1	
3(b)                kilometres	B1	
4(a) Correctly drawn angle of $57^\circ$ at E	B1	Accept $55^\circ$ to $59^\circ$ Ignore any line drawn from F; e.g. a completed triangle.
4(b) $90^\circ \div 2$ or equivalent $45^\circ$	M1 A1	
5(a) 25400 or twenty-five thousand (and) four hundred	B1	
5(b) 61	B1	
5(c) 2500(g)	B2	B1 for any one of the following: <ul style="list-style-type: none"> <li>• <math>\frac{10 \times 1000}{4}</math></li> <li>• <math>10000 \div 4</math></li> <li>• 2.5</li> <li>• the consecutive digits 2 and 5 in an answer with no other non-zero digits e.g. 0.25, 25, 250,...</li> <li>• 'their derived <math>10 \div 4 \times 1000</math></li> <li>• an answer of 2200</li> </ul>
6. (Shape A's perimeter =) $6 \times 5$ (cm) or equivalent  (Shape B's perimeter =) $4 \times 7.5$ (cm) or equivalent  Both perimeters = 30 (cm)	M1  M1  A1	Award M1M1A1 for an unsupported Shape A's perimeter = 30 cm AND Shape B's perimeter = 30cm

<p>Organisation and communication</p> <p>Accuracy of writing</p>	<p>OC1</p> <p>W1</p>	<p>For OC1, candidates will be expected to:</p> <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> <p>For W1, candidates will be expected to:</p> <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>
<p>7.(a) <math>\frac{1}{2}</math> or <math>\frac{180}{360}</math> or 50% or equivalent</p>	<p>B1</p>	<p>ISW Allow (a) half BO for answer using words alone with no numerical value; e.g. 'even chance' alone.</p>
<p>7.(b) <math>2 \times 45</math> 90</p>	<p>M1 A1</p>	<p>FT from <math>45 \div</math> 'their (a)'</p>
<p>7.(c) <math>\frac{60}{360}</math> or <math>\frac{1}{6}</math> or <math>\frac{15}{90}</math> or equivalent</p>	<p>B2</p>	<p>ISW B1 for sight of <math>360^\circ</math> as a denominator.</p>
<p>8.(a) (x =) 9</p>	<p>B1</p>	<p>Accept embedded answers. e.g. <math>7 \times 9 (= 63)</math> Mark final answer</p>
<p>8.(b) (x =) 8</p>	<p>B1</p>	<p>Accept embedded answers. e.g. <math>27 - 8 (= 19)</math> Mark final answer</p>
<p>8.(c) 14k</p>	<p>B1</p>	<p>Allow k14</p>
<p>9.(a) - 17 - 6 3 12</p>	<p>B1</p>	<p>This order only</p>
<p>9.(b) - 4.6</p>	<p>B1</p>	
<p>9.(c) - 32</p>	<p>B1</p>	
<p>10.</p> 	<p>B1 B1</p>	<p>C between 0.65 and 0.75 <b>exclusive</b> P between 0.25 and 0.35 <b>exclusive</b></p>

<p>11.</p> <table border="1" data-bbox="156 197 683 450"> <thead> <tr> <th>INPUT</th> <th>OUTPUT</th> </tr> </thead> <tbody> <tr> <td>-7</td> <td>-15</td> </tr> <tr> <td>-24</td> <td>-100</td> </tr> <tr> <td>2.5</td> <td>32.5</td> </tr> <tr> <td><math>n</math></td> <td><math>5(n + 4)</math></td> </tr> </tbody> </table>	INPUT	OUTPUT	-7	-15	-24	-100	2.5	32.5	$n$	$5(n + 4)$	<p>Mark final answer in table. If answers are not given in table, they must be clearly identified in the working space.</p> <p>B1</p> <p>B1</p> <p>B1</p> <p>B2</p> <p>Must include brackets or be fully simplified for B2. Award B2 for one of the following (or equivalent) as a final answer:</p> <ul style="list-style-type: none"> <li>• <math>5(n + 4)</math></li> <li>• <math>5(4 + n)</math></li> <li>• <math>5n + 20</math></li> <li>• <math>5 \times (n + 4)</math></li> <li>• <math>(n + 4)5</math></li> <li>• <math>(n + 4) \times 5</math>.</li> </ul> <p>Award B1 for one of the following (or equivalent) as a final answer:</p> <ul style="list-style-type: none"> <li>• <math>n + 4 \times 5</math></li> <li>• <math>5 \times n + 4</math></li> <li>• sight of correct expression with incorrect final answer (e.g. <math>5(n + 4) = 5n + 4</math> or <math>5(n + 4) = n</math>)</li> <li>• <math>\dots n + 20</math></li> <li>• <math>5n + \dots</math></li> </ul>
INPUT	OUTPUT										
-7	-15										
-24	-100										
2.5	32.5										
$n$	$5(n + 4)$										
<p>12.</p> <table border="1" data-bbox="256 1106 572 1285"> <tbody> <tr> <td><math>30 \times 8000 =</math></td> <td>240 000</td> </tr> <tr> <td><math>30 \times 7900 =</math></td> <td>237 000</td> </tr> <tr> <td><math>30 \times 7940 =</math></td> <td>238 200</td> </tr> <tr> <td><math>33 \times 8000 =</math></td> <td>264 000</td> </tr> <tr> <td><math>35 \times 8000 =</math></td> <td>280 000</td> </tr> </tbody> </table>	$30 \times 8000 =$	240 000	$30 \times 7900 =$	237 000	$30 \times 7940 =$	238 200	$33 \times 8000 =$	264 000	$35 \times 8000 =$	280 000	<p>M1</p> <p>A1</p> <p>Award M1 for any one of the products shown in the table. Award A1 for the corresponding approximation. ISW Unsupported answers will get M0A0.</p> <p>An answer of 262 020 or 262 020 approximated is awarded M0A0.</p> <p><u>If no marks</u>, award SC1 for one of the following as a final answer:</p> <ul style="list-style-type: none"> <li>• <math>3 \times 8 = 240\,000</math></li> <li>• <math>3 \times 79 = 237\,000</math></li> <li>• <math>3 \times 794 = 238\,200</math></li> <li>• <math>33 \times 8 = 264\,000</math></li> <li>• <math>35 \times 8 = 280\,000</math></li> </ul>
$30 \times 8000 =$	240 000										
$30 \times 7900 =$	237 000										
$30 \times 7940 =$	238 200										
$33 \times 8000 =$	264 000										
$35 \times 8000 =$	280 000										

<p>13.(a)</p> <p>Bethan = <b>14</b> (years old)</p> <p>Andrew = <b>21</b> (years old)</p> <p>Richard = <b>24</b> (years old)</p>	<p>B2</p>	<p>For B1, check for the required conditions being met and not the individual numbers.  <i>Required conditions (or equivalent) are:</i>  <math>B + A + R = 59</math>  <math>A - B = 7</math>  <math>R - A = 3</math>  <math>R - B = 10</math></p> <p>Award B1 for one of the following:</p> <ul style="list-style-type: none"> <li>two conditions correct</li> <li>14, 21, 24 allocated to the incorrect people e.g. B = 14, A = 24 and R = 21 (correct answer not seen in working space).</li> </ul> <p>A condition must be met using non-negative ages, otherwise B0.</p> <p>Values on the answer lines take precedence. However, award B2 for one of the following:</p> <ul style="list-style-type: none"> <li>the answer lines are left blank and the correct answers (correct ages allocated to the correct people) are seen in the working space</li> <li>the correct answers (correct ages allocated to the correct people) are seen in the working space, but ages allocated to the incorrect people on the answer lines.</li> </ul>
<p>13.(b)(i)</p> <p style="text-align: center;">27 : 30 9 : 10</p>	<p>B1 B1</p>	<p>Answer line takes precedence.  Must be in a ratio for B1.  Award B1 for one of the following:</p> <ul style="list-style-type: none"> <li>simplifying 27 : 'their 30' correctly evaluated</li> <li>an answer of 7 : 8 (from 21 : 24)</li> <li>10 : 9 (unsupported or from 30 : 27).</li> </ul> <p>Award B1 B1 for an unsupported answer of 9 : 10.</p>
<p>13.(b)(ii) Valid explanation  e.g. "they are not the same age"  "Andrew is younger (so they can't be the same)"  "Richard is older (so they can't be the same)"  "Richard is 3 years older"  "They'll always be different"  "(there's a) difference in their ages"  "their ages are not equal"  "they are 3 years apart"  "1:1 means they are the same age"  "there's a gap (in their ages)"  "they were born different dates"</p>	<p>E1</p>	<p>Do not allow FT from 13(b)(i).</p> <p>Do not allow:</p> <ul style="list-style-type: none"> <li>further spurious <b>incorrect</b> comments e.g. "they are 3 years apart, so their ratios have to add to 3"</li> <li>"Andrew will always be older"</li> <li>"Because Andrew is 7 years older".</li> </ul>

14. **Complete** method to find the volume

For example:

**Square and rectangle** (allow any equivalent valid method)

- $2 \times (12 \times 12 + 5 \times (16 - 12))$
- $2 \times (12 \times 12 + 5 \times 4)$
- $2 \times (144 + 20)$
- $288 + 40$
- $2 \times 164$

**Two rectangles** (allow any equivalent valid method)

- $2 \times (5 \times 16 + 12 \times (12 - 5))$
- $2 \times (5 \times 16 + 12 \times 7)$
- $2 \times (80 + 84)$
- $160 + 168$
- $2 \times 164$

**Three rectangles** (allow any equivalent valid method)

- $2 \times (12 \times (12 - 5) + 5 \times 12 + 5 \times 4)$
- $2 \times (12 \times 7 + 5 \times 12 + 5 \times 4)$
- $2 \times (84 + 60 + 20)$
- $168 + 120 + 40$
- $2 \times 164$

**Larger rectangle – smaller rectangle** (allow any equivalent valid method)

- $2 \times (16 \times 12 - (16 - 12) \times (12 - 5))$
- $2 \times (16 \times 12 - 4 \times 7)$
- $2 \times (192 - 28)$
- $2 \times 164$
- $384 - 56$

(Volume =) 328 (cm<sup>3</sup>)

M3

*Note: check diagram for the area and missing lengths*  
If not M3 award M2 or M1 depending on the entries in the table.

Calculations such as  $12 \times 12 \times 5 \times 16 \times 2$  are awarded M0.

For M2 and M1, FT 'their (16 – 12)' or 'their (12 – 5)' where appropriate.

Award M2 for <b>one</b> of the following: <i>(summing two areas/subtracting two areas/finding one volume)</i>	Award M1 for <b>one</b> of the following: <i>(calculating one area)</i>
<b>Square and rectangle</b>	
<ul style="list-style-type: none"> <li>• <math>12 \times 12 + 5 \times (16 - 12)</math></li> <li>• <math>12 \times 12 + 5 \times 4</math></li> <li>• <math>144 + 20</math></li> <li>• <b>164</b></li> <li>• <math>2 \times 12 \times 12</math></li> <li>• <math>2 \times 144</math></li> <li>• <b>288</b></li> <li>• <math>2 \times 5 \times (16 - 12)</math></li> <li>• <math>2 \times 5 \times 4</math></li> <li>• <math>2 \times 20</math></li> <li>• <b>40</b></li> </ul>	<ul style="list-style-type: none"> <li>• <math>12 \times 12</math></li> <li>• <b>144</b></li> <li>• <math>5 \times (16 - 12)</math></li> <li>• <math>5 \times 4</math></li> <li>• <b>20</b></li> </ul>
<b>Two rectangles</b>	
<ul style="list-style-type: none"> <li>• <math>5 \times 16 + 12 \times (12 - 5)</math></li> <li>• <math>5 \times 16 + 12 \times 7</math></li> <li>• <math>80 + 84</math></li> <li>• <b>164</b></li> <li>• <math>2 \times (5 \times 16)</math></li> <li>• <math>2 \times 80</math></li> <li>• <b>160</b></li> <li>• <math>2 \times 12 \times (12 - 5)</math></li> <li>• <math>2 \times 12 \times 7</math></li> <li>• <math>2 \times 84</math></li> <li>• <b>168</b></li> </ul>	<ul style="list-style-type: none"> <li>• <math>5 \times 16</math></li> <li>• <b>80</b></li> <li>•</li> <li>• <math>12 \times (12 - 5)</math></li> <li>• <math>12 \times 7</math></li> <li>• <b>84</b></li> </ul>
<b>Three rectangles</b>	
<ul style="list-style-type: none"> <li>• <math>12 \times (12 - 5) + 5 \times 12 + 5 \times 4</math></li> <li>• <math>12 \times 7 + 5 \times 12 + 5 \times 4</math></li> <li>• <math>84 + 60 + 20</math></li> <li>• <b>164</b></li> <li>• <math>2 \times 12 \times (12 - 5)</math></li> <li>• <math>2 \times 12 \times 7</math></li> <li>• <math>2 \times 84</math></li> <li>• <b>168</b></li> <li>• <math>2 \times 5 \times 12</math></li> <li>• <math>2 \times 60</math></li> <li>• <b>120</b></li> <li>• <math>2 \times 5 \times 4</math></li> <li>• <math>2 \times 20</math></li> <li>• <b>40</b></li> </ul>	<ul style="list-style-type: none"> <li>• <math>12 \times (12 - 5)</math></li> <li>• <math>12 \times 7</math></li> <li>• <b>84</b></li> <li>• <math>5 \times 12</math></li> <li>• <b>60</b></li> <li>• <math>5 \times 4</math></li> <li>• <b>20</b></li> </ul>
<b>Larger rectangle – smaller rectangle</b>	
<ul style="list-style-type: none"> <li>• <math>16 \times 12 - (16 - 12) \times (12 - 5)</math></li> <li>• <math>16 \times 12 - 4 \times 7</math></li> <li>• <math>192 - 28</math></li> <li>• <b>164</b></li> <li>• <math>2 \times 16 \times 12</math></li> <li>• <math>2 \times 192</math></li> <li>• <b>384</b></li> <li>• <math>2 \times (16 - 12) \times (12 - 5)</math></li> <li>• <math>2 \times 4 \times 7</math></li> <li>• <math>2 \times 28</math></li> <li>• <b>56</b></li> </ul>	<ul style="list-style-type: none"> <li>• <math>16 \times 12</math></li> <li>• <b>192</b></li> <li>• <math>(16 - 12) \times (12 - 5)</math></li> <li>• <math>4 \times 7</math></li> <li>• <b>28</b></li> </ul>

A1

CAO

<p>15. Plotting the three given points (black crosses below).</p> <p>Three correct possible points for the 4<sup>th</sup> vertex plotted (red crosses below) AND correct coordinates given.</p> <p>(7, 7)      (9, -1)      (1, -1)</p>	<p>P1</p> <p>B3</p>	<p>Answer lines take precedence. For P1 B3 only 6 points should be plotted on grid.</p> <p>Award B2 for one of the following:</p> <ul style="list-style-type: none"> <li>• correct coordinates of at least two possible points for the 4<sup>th</sup> vertex</li> <li>• 3 possible points for the 4<sup>th</sup> vertex are indicated on the grid but coordinates not given or given incorrectly with no more than 6 points on the grid.</li> </ul> <p>Award B1 for one of the following:</p> <ul style="list-style-type: none"> <li>• correct coordinates of one possible point for the 4<sup>th</sup> vertex</li> <li>• 2 possible points for the 4<sup>th</sup> vertex are indicated on the grid but coordinates not given or given incorrectly with no more than 6 points on the grid.</li> </ul>
<p>16.</p> <p style="text-align: center;">A = 7</p> <p style="text-align: center;">B = 9</p> <p style="text-align: center;">C = 2</p>	<p>B2</p> <p>B2</p> <p>B2</p>	<p>Check diagrams for answers. Answer lines take precedence.</p> <p>Award B1 for sight of <math>3A + 2 = 23</math> or <math>3A = 21</math>.</p> <p>Award B1 for sight of <math>2B + 10 = B + 19</math> or equivalent e.g. <math>2B = B + 9</math> or <math>B + 10 = 19</math> or <math>(B = )19 - 10</math>. Do not award B1 for <math>(19 - 10) \div 3</math> (may be seen in stages).</p> <p><b>Strict</b> FT <math>\frac{\text{'their A'} \times 2 + \text{'their B'} - 19}{2}</math> for B2 or B1. On FT, if <math>C \leq 0</math>, then award B1 only.</p> <p>Award B1 for one of the following:</p> <ul style="list-style-type: none"> <li>• <math>2C = 4</math> or equivalent (e.g. <math>C + C = 4</math>)</li> <li>• sight of <math>2C + 25 = 7 + 7 + 9 + 6</math> or equivalent</li> <li>• sight of <math>2C + 25 = \text{'their A'} \times 2 + \text{'their B'} + 6</math> or equivalent.</li> </ul> <p>Allow an embedded answer but penalise -1 (for each letter) if later contradicted.</p>

<p>17.</p> $(6x =) 360 - (42 \times 6) (= 108^\circ)$ $\div 6$ $(x =) 18^\circ$	<p>M2</p> <p>m1</p> <p>A1</p>	<p>Check diagram for answers. Sight of <math>108^\circ</math> implies M2. Award M1 for sight of <math>42 \times 6</math> or <math>252^\circ</math>.</p> <p>Award m1 only if M2 awarded.</p> <p>CAO. Mark final answer. Unsupported 18 is awarded M2m1A1.</p> <p>Allow an embedded answer but penalise -1 if contradicted by <math>x \neq 18</math> or equivalent</p> <p>Award SC1 for a final answer of <math>30^\circ</math> or <math>9.4\dots^\circ</math> (must be clearly using rotational symmetry of order 5 or 7).</p>
<p><u>17. Alternative method 1</u></p> $360 \div 6$ $(x =) 60 - 42 \text{ or } 42 + x = 60$ $18^\circ$	<p>M1</p> <p>A1</p> <p>m1</p> <p>A1</p>	<p>Sight of <math>60^\circ</math> implies M1 A1</p> <p>FT 'their derived 60' - 42, provided M1 awarded and 'their derived 60' &gt; 42. Unsupported 18 is awarded M1A1M1A1.</p> <p>Mark final answer. Allow an embedded answer but penalise -1 if contradicted by <math>x \neq 18</math> or equivalent If FT leads to a whole number answer, it must be shown as a whole number. Otherwise accept a fraction. Award SC1 for a final answer of <math>30^\circ</math> or <math>9.4\dots^\circ</math> (must be clearly using rotational symmetry of order 5 or 7).</p>
<p><u>17. Alternative method 2</u></p> $6(42 + x) = 360 \text{ or } 42 + x = 360 \div 6$ $252 + 6x = 360 \text{ or } 42 + x = 60$ $(x =) 18^\circ$	<p>B2</p> <p>B1</p> <p>B1</p>	<p>Award B1 for sight of <math>6(42 + x)</math> or <math>360 \div 6</math></p> <p>FT from <math>6x = k</math>, if B2 B0 previously awarded.</p> <p>Mark final answer. Allow an embedded answer but penalise -1 if contradicted by <math>x \neq 18</math> or equivalent If FT leads to a whole number answer, it must be shown as a whole number. Otherwise accept a fraction. Award SC1 for a final answer of <math>30^\circ</math> or <math>9.4\dots^\circ</math> (must be clearly using rotational symmetry of order 5 or 7).</p>
<p>18.</p> $(\text{Area} =) \frac{(15 + 9) \times 8}{2} \text{ or equivalent}$ $= 96$ <p>cm<sup>2</sup></p>	<p>M1</p> <p>A1</p> <p>U1</p>	<p>May be seen in stages.</p> <p>Award M1 for one of the following:</p> <ul style="list-style-type: none"> <li><math>\frac{(15 - 9) \times 8}{2} + 8 \times 9 (= 24 + 72)</math></li> <li><math>15 \times 8 - \frac{8 \times (15 - 9)}{2} (= 120 - 24)</math></li> </ul> <p>Allow M1A1 for correct intent or complete method <u>seen</u> with correct answer .e.g. <math>15 + 9 \times 8 \div 2 = 96</math></p> <p>Independent of all other marks.</p>