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# **GCSE MARKING SCHEME**

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**AUTUMN 2018**

**GCSE  
MATHEMATICS  
UNIT 2 - INTERMEDIATE TIER  
3300U40-1**

## **INTRODUCTION**

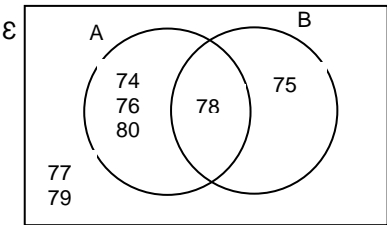
This marking scheme was used by WJEC for the 2018 examination. It was finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conference was held shortly after the paper was taken so that reference could be made to the full range of candidates'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



<p>5.</p> $(ABC \text{ or } BAC =) \frac{180 - 76}{2}$ $= 52(^{\circ})$ <p>(CBP = 180 – 52 =) or (CBP = 76 + 52 =) 128(^{\circ})</p>	<p>M1</p> <p>A1</p> <p>B1</p>	<p>Angles may be shown on the diagram.</p> <p>F.T. 'their derived, stated or shown 52' BUT <u>not</u> 76.</p>
<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> </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>6.(a) (m =) 9.6</p>	<p>B1</p>	<p>Mark final answer. Allow embedded answer. B1 for 9.6/2 or 9.6/2 = 4.8 with <u>no</u> further work. B0 for 9.6/2 followed by 'm ≠ 9.6'.</p>
<p>6.(b)(i) 3(2x – 5)</p>	<p>B1</p>	<p>Allow 3 × (2x – 5)</p>
<p>6.(b)(ii) y(y + 4)</p>	<p>B1</p>	<p>Allow y × (y + 4)</p>
<p>6.(c)(i) –2</p>	<p>B1</p>	<p>B0 for –2n. Mark final answer.</p>
<p>6.(c)(ii) Example given, e.g. 3 × 25 – 20 = 55</p>	<p>B1</p>	<p>Candidates must show a calculation or link a term with its correct value e.g. '25<sup>th</sup> term is 55'. If they list the terms, then the list must be accurate and start at –2 (6<sup>th</sup> term) or one of the previous terms.</p>
<p>7. <u>All</u> possible numbers shown with no extras. (11,12,13,14,21,22,23,24,31,32,33,34,41,42,43,44) OR Clearly justifies that there are 16 possible numbers from 4 × 4 = 16</p> <p>(Probability multiple of 7 =) <math>\frac{3}{16}</math> or equivalent. ISW</p>	<p>B2</p> <p>B2</p>	<p>B1 for at least 10 correct and no more than 4 'extras'. 10 + 1, 10 + 2, etc and <u>not</u> added gain no credit.</p> <p>F.T. 'their list' only if at least 6 numbers given which includes at least one multiple of seven. OR B1 for x/16 with x&lt;16. B1 for 3/y with y &gt;3. Penalise, –1, any incorrect notation e.g. '3 out of 16'. Unsupported 3/16 gains B0B2.</p>

<p>8.(a) (1 mile =) <math>\frac{8}{5}</math>(km) or 1600(m) or equivalent</p> <p>(Difference =) <math>\frac{8}{5} \times 1000 - 1.5 \times 1000</math></p> <p>100 (metres)</p>	<p>B1</p> <p>M1</p> <p>A1</p>	<p>For sight of a correct conversion e.g. 5 miles = 8 km , 1 km = 5/8 mile. Allow more accurate correct approximations (for <u>all</u> marks) only if in the range [1609(m) to 1610(m)]</p> <p>No FT from an incorrect conversion. Allow M1 for <math>\frac{8}{5} - 1.5 (= 0.1)</math> or equivalent.</p> <p>Allow -100 (metres). If no marks gained then allow SC1 for sight of <math>(1.5 \times 5/8)</math></p>
<p>8.(b) <math>4 \times 100^2</math></p> <p>= 40000</p>	<p>M1</p> <p>A1</p>	<p>Also for alternative correct methods e.g. (A 4x1 rectangle followed by) a 400x100 calculation, 200 x 200, etc.</p>
<p>9. (Area of square =) <math>40.96(\text{cm}^2)</math> (Perp. height of triangle =) <math>4.3(\text{cm})</math></p> <p>(Area of triangle =) <math>\frac{6.4 \times 4.3}{2} = 13.76(\text{cm}^2)</math></p> <p>(Area of ABCDE = <math>40.96 + 13.76 = 54.72(\text{cm}^2)</math>)</p>	<p>B1</p> <p>B1</p> <p>M1</p> <p>A1</p> <p>B1</p>	<p>May be seen on the diagram. Do not accept 4.3 as a 'slant height' <u>unless used correctly for M1.</u> F.T. 'their unambiguously stated 4.3'. (Not 10.7).</p> <p>F.T. from two derived or stated areas. Allow 54.7 only if 54.72 seen. <i>Otherwise penalise <b>pre-approximation -1 once only.</b></i></p>
<p>10.(a) <math>\times 0.88^3</math></p>	<p>B1</p>	
<p>10(b) <math>\frac{45.9 - 42.5}{42.5} (= 0.08)</math> OR <math>\frac{45.9}{42.5} (= 1.08)</math></p> <p><math>0.08 \times 100</math> OR <math>(1.08 \times 100) - 100</math></p> <p>8(%)</p>	<p>M1</p> <p>m1</p> <p>A1</p>	<p>May be seen in parts.</p> <p>C.A.O. If no marks awarded allow SC1 for -8(%)</p>
<p>11.</p> 	<p>B2</p> <p>B1</p>	<p>Correct groupings of all 7 numbers within and outside the two circles (with or without a rectangle). B1 for 5 or 6 correctly placed numbers. No credit for a number shown in more than one section. Penalise -1, once only, if a number not in the universal set is noted. <u>Ignore labelling for this B2 or B1.</u> (i.e. ignore missing, conflicting or incorrect labels.)</p> <p><i>Allow intent of drawing circles and a rectangle.</i> Two intersecting circles correctly <u>labelled</u> A and B OR 'even numbers' and 'multiples of 3' (but not conflicting labels or labels that conflict number placements) <u>within a rectangle.</u> Allow missing 'E' symbol.</p>

12.(a)	-5                      11	B2	B1 for each. Table takes precedence if conflicting values given.
12.(b) At least 6 correct plots and no incorrect plot.  A smooth <u>curve</u> drawn through their plots.		P1  C1	F.T. 'their (-2,-5)' and 'their (2,11)' OR (-2,-5) and (2,11) plotted. Allow $\pm$ '½ a small square'. <u>Ignore any plots that can not be shown e.g. (-2,-13).</u>  F.T. 'their plots'. OR a curve through the 6 given points and (-2,-5) and (2,11). Allow intention to pass through their plots. ( $\pm$ 1 small square horizontal or vertical.)
12.(c)	Line $y = 2$ drawn  -4.65    AND    0.65	L1  B1	Must be at least 2cm long.  F.T. intersection of 'their curve' with 'their $y = 2$ ' only if exactly two points of intersection. Allow $\pm$ '1 small square'.
13.	70	B3	B2 for 77 OR 80  B1 for any number between 65 and 79 inclusive, apart from 70(B3) and 77(B2)  B1 for 56, 60 OR 63
14.	One correct evaluation $5 \leq x \leq 6$ 2 correct evaluations $5.55 \leq x \leq 5.75$ , one < 107, one > 107. 2 correct evaluations $5.65 \leq x \leq 5.75$ , one < 107, one > 107.  $x = 5.7$	B1 B1  M1  A1	<i>Correct evaluation regarded as enough to identify if 'too high' or 'too low'. If evaluations not seen accept 'too high' or 'too low'.</i> $\frac{x}{107=0}$ $\frac{x^3 - 13x}{107=0}$ (or check $x^3 - 13x -$  5                                      60 5.1                                      66.351 5.2                                      73.008 5.3                                      79.977 5.4                                      87.264 5.5                                      94.875 <b>5.6                                      102.816</b> 5.55                      98.803... <b>5.7                                      111.093</b> <b>5.65                      106.912...</b> 5.8                                      119.712                      5.655                      107.326... 5.9                                      128.679                      5.75                      115.359... 6                                      138
15.(a)	$\frac{1}{2}$	B1	
15.(b)	-3	B1	
15.(c)	(5, 2)	B1	
16.	(Length of side = $\frac{76.4}{4}$ =)  19.1(m)  (diagonal <sup>2</sup> =) $19.1^2 + 19.1^2$ diagonal <sup>2</sup> = 729.6(2) or (diagonal =) $\sqrt{729.6(2)}$  (diagonal =) 27.0(..)(m) or 27(m)	B1  M1 A1  A1	F.T. 'their derived length of side' (not 76.4) Diagonal = 729.6(2) is A0 unless corrected in further work F.T. 'their 729.6' provided M1 awarded and their answer is greater than 19.1.  Award SC2 for a final answer of 108(-0...)(m) (from using 76.4(m) as side length) BUT In this case there is no credit given for sight of 19.1.

