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# **GCSE MARKING SCHEME**

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**SUMMER 2017**

**GCSE (NEW)  
MATHEMATICS - UNIT 1 (INTERMEDIATE)  
3300U30-1**

## **INTRODUCTION**

This marking scheme was used by WJEC for the 2017 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.

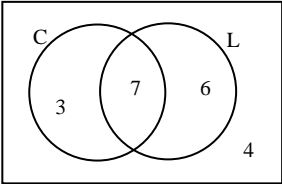
It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conference, teachers may have different views on certain matters of detail or interpretation.

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



<p align="center"><b>GCSE MATHEMATICS</b>  <b>Unit 1 : Intermediate Tier</b>  <b>Summer 2017</b></p>	✓	Mark	<p align="center"><b>MARK SCHEME</b>  <b>Comments ( Page 2)</b></p>
<p>7(a). <math>x + 2x + 3x + 90 = 360</math> or equivalent.</p> $6x = 270$ $x = \frac{270}{6}$ $= 45$	✓	M1	<p>Allow M1 for attempting sum of <math>a + b + c + 90</math> with ratio <math>a:b:c = 1:2:3</math> and <u>clearly</u> using trial and improvement to aim for a total of 360.</p>
<p>7(b) Correct use of <math>2x = 90(^{\circ})</math>  'Yes' AND correct justification.  e.g. 'Yes because of interior angles',  'Yes as lines are perpendicular to the base'  'Both A and B are <math>90^{\circ}</math>'.</p>		B1 E1	<p>F.T. 'their value of x'. Must be used in justification.  Dependent on B1 with F.T. justification.</p> <p><i>Alternative method for the B1 mark</i>  Use of <math>3x = 135(^{\circ})</math> AND <math>x = 45(^{\circ})</math></p>
<p>8(a) <math>\frac{40 \times 30}{200}</math> OR <math>\frac{41 \times 30}{200}</math>  <math>= 6</math> OR <math>6.15</math> or <math>6</math></p>		M1  A1	<p>Unsupported answer (M0) is also A0.</p>
<p>8.(b) (i) 454 680</p>		B1	
<p>8.(b) (ii) 842</p>		B1	
<p>8.(b) (iii) 5.4</p>		B1	
<p>9.  (Use of area of PBCQ =) <math>52 - 20 (= 32 \text{ cm}^2)</math>  (Area of PBCQ =) <math>8 \times f = 32</math>  <math>f = 4</math></p> <p>(Area of APQD =) <math>4 \times g = 20</math>  <math>g = 5</math></p>	<p>✓  ✓  ✓  ✓  ✓  ✓  ✓  ✓</p>	<p>B1  M1  A1  M1  A1  OC1  W1</p>	<p><i>Answers /working may be seen on diagram.</i></p> <p>F.T. 'their derived 32' but not 52  [B1M1 implied by <math>8f = 32</math>]  C.A.O. (implies B1M1A1)</p> <p>F.T. 'their f'.</p> <p><i>Alternative method</i>  <math>f \times (g + 8) = 52</math> <span style="float:right">M1</span>  <math>[fg + 8f = 52]</math>  <math>fg = 20</math> <span style="float:right">M1</span>  [M2 implied by <math>20 + 8f = 52</math> or <math>8f = 32</math>]</p> <p><math>f = 4</math> <span style="float:right">A1 C.A.O.</span></p> <p><math>4 \times g = 20</math> <span style="float:right">M1 FT 'their f'.</span>  <math>g = 5</math> <span style="float:right">A1</span></p> <p>Organisation and Communication.  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>Accuracy of writing.  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>

<b>GCSE MATHEMATICS</b> <b>Unit 1 : Intermediate Tier</b> <b>Summer 2017</b>	✓	Mark	<b>MARK SCHEME</b> <b>Comments ( Page 3)</b>
10.(a) $1 - (0.4 + 0.25 + 0.2)$ $= 0.15$ or equivalent.		M1 A1	
10.(b) $0.25 + 0.2$ $= 0.45$ or equivalent.		M1 A1	
10.(c) $0.4 \times 0.4$ $= 0.16$ or equivalent.		M1 A1	
11.(a) $-4$		B1	
11.(b) At least 6 correct plots and <u>no incorrect plot</u> . A smooth <u>curve</u> drawn through their plots.		P1 C1	F.T. 'their (3,-4)'. Allow $\pm$ '½ a small square'. F.T. 'their 7 plots'. OR a curve through the 6 given points and (3,-4). Allow intention to pass through their plots. ( $\pm$ '1 small square horizontal or vertical').
11.(c) Line $y = -3$ drawn  1.4 AND 3.6		B1  B1	F.T. intersection of 'their curve' with 'their $y = -3$ ' only if exactly two points of intersection. Allow $\pm$ '1 small square'.
12.(a) For a method that produces 2 prime factors from the set {2, 2, 5, 5, 7} before the 2 <sup>nd</sup> error.  $2, 2, 5, 5, 7$  $2^2 \times 5^2 \times 7$		M1  A1  B1	C.A.O. For sight of the five correct factors (Ignore 1s) F.T. 'their primes' provided at least one index form used with at least a square. Do not F.T. non-primes. Allow $(2^2)(5^2)(7)$ and $2^2.5^2.7$ Do not allow $2^2, 5^2, 7$ . Inclusion of 1 as a factor gets B0.
12.(b) Any reference to the index being an odd number. e.g. 'power must be even', '25 is odd' etc.		E1	Do not accept e.g. 'should be $2^{24}$ ', 'it isn't even'.
13.(a) $y = -x + 2$		B1	
13.(b) (2, 5)		B1	
13.(c) $\frac{2}{3}$		B1	

GCSE MATHEMATICS Unit 1 : Intermediate Tier Summer 2017	✓	Mark	MARK SCHEME Comments ( Page 4)
14. 7		B3	B2 for 5. B1 for 4 or 6 or 8 or 9 If no marks awarded allow SC1 for 11 or 13 or 17.
15. (volume) Area Length None Area Volume		B3	<i>Must use the terminology given in the question.</i> B3 for all 5 correct. B2 for 3 or 4 correct. B1 for 2 correct. B0 otherwise.
16.(a) 		B1 B1 B1	Any 'blank space' to be taken as 0.  For the 4 in correct position. For the 7 in correct position.  For the 3 AND 6 in correct positions. OR two of the following conditions met (i) 10 – 'their (non-zero) 7' (ii) 13 – 'their (non-zero) 7'. (iii) total of four numbers = 20. SC1 for all regions correct but using alternative notation e.g. tallies.
16.(b) 9/20 or equivalent. ISW		B2	B1 for a numerator of 9 (F.T. 'their 3' + 'their 6') in a fraction < 1. B1 for a denominator of 20 in a fraction < 1.
17. Method to eliminate variable e.g. equal coefficients with intention to <u>appropriately</u> add or subtract' First variable found $x = 5$ or $y = -2$ . Substitute to find the 2 <sup>nd</sup> variable. Second variable found.	✓  ✓ ✓ ✓	M1  A1 m1 A1	<i>No marks for 'trial and improvement'.</i> Allow 1 error in one term, not one with equal coefficients.  C.A.O. F.T. their '1 <sup>st</sup> variable'.
18. $5.64 \times 10^5$		B2	B1 for correct answer not in standard form e.g. 564000, or $56.4 \times 10^4$ . Allow B1 for $5.6 \times 10^5$ .
19. $4n - 8 > n + 17$  $3n > 25$  $n > 25/3$  (least value of $n =$ ) 9	✓ ✓  ✓  ✓  ✓	B2  B1  B1  B1	If not B2, allow B1 for sight of $4n - 8$ AND $n + 17$ in an inequality.  F.T. from 'their <u>inequality</u> ', if of equivalent difficulty.  F.T. from 'their $a > b$ ' or 'their $a < b$ ' provided $a \neq 1$ .  F.T. from their ' $n > 25/3$ ', provided $n > 0$ . An answer of 9 without showing $4n - 8 > n + 17$ gains B3 only. Accept 'Rashid had 9 (sheep)'.