



GCSE MARKING SCHEME

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.

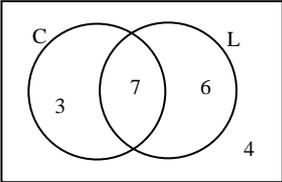
It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conference, teachers may have different views on certain matters of detail or interpretation.

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

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1.(a) 1 and -5		B2	B1 for 1. B1 F.T. for 'their 1' – 6.
1.(b) - 6 + 70 = 64		B1 B1	B1 for sight of - 6 OR 70 (but not -70). B0 for -6x + 70y. C.A.O. Mark final answer.
1.(c) 6k – 5m		B2	Must be an expression for B2. B1 for sight of (+)6k OR sight of - 5m. B1 for 6k + - 5m. Mark final answer.
2. Showing (0.4), 0.15 and 0.35 OR 40% , (15%) and 35% OR 8/20, 3/20 and (7/20) OR three correct calculations for a common amount. 15% 7/20 0.4 in order		B2 B1 3	B2 for all correct decimals, OR all correct %, OR all correct fractions <u>with a common denominator</u> , OR correct work using a common amount, OR a valid combination that allows full comparison. B1 for one correct conversion <u>that still allows a full comparison</u> . (i.e. allow one error in attempt at common format.) Allow any unambiguous indication. F.T. 'their work' if at least B1 gained. Unsupported correct answer gains B1 only.
3.(a) Correct reflection.		B1	B0 if additional shapes.
3.(b) Correct enlargement.		B2	Use overlay. Allow any orientation. B1 for one side correctly enlarged. SC1 for an enlargement by a factor of 2 or 4.
3.(c) Correct translation.		B1	
4.(a) 1/6		B1	
4.(b) 10		B1	
4.(c) 6 blue 6 yellow 3 pink		B1	
5. (Team A) 12 (Team B) 3		B2	B1 for values that satisfy $A - B = 9$ OR $A = 4 \times B$. e.g. final working line of 10 and 1 (or 8 and 2) would be awarded B1 if not contradicted in the answer space. SC1 for reversed answer $A = 3$ and $B = 12$.
6(a) (David – Hr Jane – Rh Mary – P) David – Hr Jane – P Mary – Rh David – Rh Jane – Hr Mary – P David – Rh Jane – P Mary – Hr David – P Jane – Hr Mary – Rh David – P Jane – Rh Mary – Hr		B2	Allow any unambiguous notation e.g. 'DH'. For all other 5 different combinations. Do not penalise repeats. B1 for 3 or 4 other <u>different</u> combinations. B0 otherwise.
6.(b) $\frac{4}{6}$ or equivalent. ISW		B2	2/3 or 4/6 gains B2 regardless of their list. B1 for $x/6$ ($x < 6$) OR $4/y$ ($y > 4$) F.T. 'their list' (using <u>different</u> combinations) if at least 4 to choose from for B2 or B1 as appropriate.

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7(a). $x + 2x + 3x + 90 = 360$ or equivalent. $\begin{array}{r} 6x = 270 \\ x = \frac{270}{6} \\ = 45 \end{array}$	✓	M1 A1 A1 A1	Allow M1 for attempting sum of $a + b + c + 90$ with ratio $a:b:c = 1:2:3$ and <u>clearly</u> using trial and improvement to aim for a total of 360. F.T. from $ax = b$. Allow SC2 for an answer of 15 (from ' $= 180$ ')
7(b) Correct use of $2x = 90(^{\circ})$ 'Yes' AND correct justification. e.g. 'Yes because of interior angles', 'Yes as lines are perpendicular to the base' 'Both A and B are 90° '.		B1 E1	F.T. 'their value of x '. Must be used in justification. Dependent on B1 with F.T. justification. <u>Alternative method for the B1 mark</u> <i>Use of $3x = 135(^{\circ})$ AND $x = 45(^{\circ})$</i>
8(a) $\frac{40 \times 30}{200}$ OR $\frac{41 \times 30}{200}$ $= 6$ OR 6.15 or 6		M1 A1	Unsupported answer (M0) is also A0.
8.(b) (i) 454 680		B1	
8.(b) (ii) 842		B1	
8.(b) (iii) 5.4		B1	
9. (Use of area of PBCQ =) $52 - 20 (= 32 \text{ cm}^2)$ (Area of PBCQ =) $8 \times f = 32$ $f = 4$ (Area of APQD =) $4 \times g = 20$ $g = 5$	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	B1 M1 A1 M1 A1 OC1 W1	<i>Answers /working may be seen on diagram.</i> F.T. 'their derived 32' but not 52 [B1M1 implied by $8f = 32$] C.A.O. (implies B1M1A1) F.T. 'their f '. <u>Alternative method</u> $f \times (g + 8) = 52$ M1 $[fg + 8f = 52]$ $fg = 20$ M1 $[M2 \text{ implied by } 20 + 8f = 52 \text{ or } 8f = 32]$ $f = 4$ A1 C.A.O. $4 \times g = 20$ M1 FT 'their f'. $g = 5$ A1 Organisation and Communication. For OC1, candidates will be expected to: <ul style="list-style-type: none"> • present their response in a structured way • explain to the reader what they are doing at each step of their response • lay out their explanation and working in a way that is clear and logical Accuracy of writing. For W1, candidates will be expected to: <ul style="list-style-type: none"> • show all their working • make few, if any, errors in spelling, punctuation and grammar • use correct mathematical form in their working • use appropriate terminology, units, etc

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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) 0.4×0.4 $= 0.16$ 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 nd 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	

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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 nd 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 st variable'.
18. 5.64×10^5		B2	B1 for correct answer not in standard form e.g. 564000, or 56.4×10^4 . Allow B1 for 5.6×10^5 .
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)'.