



GCSE MARKING SCHEME

AUTUMN 2020

**GCSE
MATHEMATICS – UNIT 1 (HIGHER TIER)
3300U50-1**

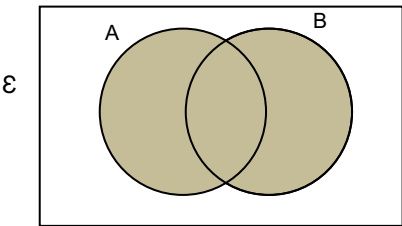
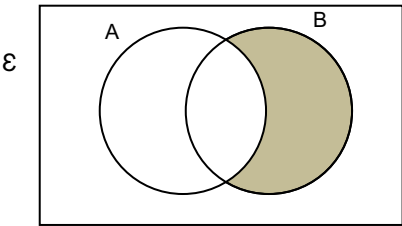
INTRODUCTION

This marking scheme was used by WJEC for the 2020 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 2020 MARK SCHEME

GCSE Mathematics Unit 1: Higher Tier		Mark	Comments
1.(a)	$5n - 3$	B2	B1 for sight of $5n$. Mark final answer.
1.(b)	17	B1	
1.(c)	$2n + 2$ OR $2(n + 1)$	B2	If $2n + 2$ is not their final answer allow B1 for sight of $2n + 2$ in earlier work. B1 for a correct answer not simplified or incorrectly simplified e.g. $n + n + 2$.
2.(a)(i)		B1	
2.(a)(ii)		B1	
2.(b)	A valid statement. e.g. 'all multiples of 6 are also multiples of 3' 'because 3 goes into 6', '6 is a multiple of 3'. '3 is a factor of 6'.	E1	Allow e.g. '(set) C is a subset of (set) A'. 'it is a multiple of 3' '6, 12, ... are also multiples of 3'.
3.(a)	9 -7	B2	B1 for each.
3.(b)	At least 6 correct plots and no incorrect plot. A smooth curve drawn through their plots.	P1 C1	FT 'their (-2,9)' and 'their (2,-7)' Allow $\pm \frac{1}{2}$ a small square'. FT 'their 8 plots'. OR a curve through the 6 given points and (-2,9) and (2,-7). Allow intention to pass through their plots. (± 1 small square horizontal or vertical.)
3.(c)	Line $y = 1$ drawn -0.8 AND 4.8	B1 B1	Must be at least 2cm long. FT intersection of 'their curve' with 'their $y = 1$ ' only if exactly two points of intersection and $y \neq 0$. If curve drawn, but no line drawn, allow a FT from intersection of 'their curve' with the line $y = 1$ only if exactly two points of intersection for B0 B1. Allow ± 1 small square'.

4. (One part =) (£)210 ÷ 3 = (£)70 (Total amount =) 14 × (£)70 OR (£)210 + 4 × (£)70 + 7 × (£)70 = (£)980	M1 A1 m1 A1	FT ‘their (£)70’ only if M1 gained. Allow m1 for sight of 210 AND 280 AND 490 together as the three shares. <i>For 210 ÷ 3 × 14 M3 = 980 A1</i>
Organisation and Communication. 		

12. $6(2x + 1) - 4(3x - 5)$ as a <u>numerator</u> within a single fraction $(3x - 5)(2x + 1)$ as a <u>denominator</u> $h26 / (3x - 5)(2x + 1)$	M1 M1 A1	Allow intention of brackets, e.g. $6 \times 2x + 1 - 4 \times 3x - 5$ CAO. Allow $26 / (6x^2 - 7x - 5)$ (If expanded, the denominator must be correct.) If M1 M1 A1, penalise further incorrect work -1. If no marks awarded, then SC1 for sight of 26.
13. (Linear scale factor =) $\sqrt[3]{1280 / 20}$ (= 4) $\sqrt[3]{1280 / 20} \times 2.3$ $= 9.2 \text{ (cm)}$	B1 M1 A1	Or equivalent. Accept a method based on ratios e.g. $1 : 4$ (from $20 : 1280 = 1 : 64 = 1 : 4^3$) FT their derived scale factor (from $\sqrt[3]{}$). SC1 for an answer of 18.4 (using s.f. of 8, from $\sqrt[3]{64}$).
<u>Alternative method (using reciprocal scale factor)</u> (Linear scale factor =) $\sqrt[3]{20 / 1280}$ (= $1 / 4$) $2.3 \div \sqrt[3]{20 / 1280}$ OR $1 / \sqrt[3]{20 / 1280} \times 2.3$ $= 9.2 \text{ (cm)}$	B1 M1 A1	Or equivalent. Accept a method based on ratios. FT their derived scale factor (from $\sqrt[3]{}$).
14. (a) $10x = 8.121212.....$ and $1000x = 812.1212.....$ <u>with</u> an attempt to subtract on both sides $804/990$ (= $402/495 = 134/165$)	M1 A1	Or x and $100x$, or equivalent. Or a <u>complete</u> alternative method. An answer of $80.4/99$ gains M1 only. ISW
<u>Alternative method</u> $0.8 + 0.0121212..... = 8/10 + 12/990$ or equivalent $804/990$ (= $402/495 = 134/165$)	M1 A1	 ISW
14. (b) $6\sqrt{2}$	B1	
14. (c) $7 \times 3 + 7\sqrt{5} - 3 \times 2\sqrt{5} - 2(\sqrt{5})^2$ or equivalent $= 11 + \sqrt{5}$	M1 A1	Mark final answer. Accept $11 + 1\sqrt{5}$. If no marks awarded, SC1 for 3 correctly simplified terms i.e. 21, $7\sqrt{5}$, $-6\sqrt{5}$, -10 .
15. $FG = HG$ (since G is the midpoint of FH) EG is a common side - Angle $EGF =$ Angle EGH (since EG and FH are perpendicular) SAS (or two sides and the <u>included</u> angle) so that EFG and EHG are congruent triangles. <u>Allow alternative method</u> $FG = HG$ (since G is the midpoint of FH) EG is a common side $EF = EH$ using Pythagoras SSS (or all corresponding sides equal) so that EFG and EHG are congruent triangles.	B1 B1 B1 B1 B1 B1 B1	Do not accept indications on the diagram. FT from B2 previously awarded. Must be convincing. Do not allow 'two sides and an angle'. Do not accept indications on the diagram. Must be convincing. An unsupported statement that $EF = EH$, or that triangle is 'isosceles', is insufficient. FT from B2 previously awarded. Allow RHS. Must be convincing.

19. (a) $1/11 \times 6/10$ or equivalent $= 6/110 (= 3/55)$	M1 A1	ISW
19. (b) $6/11 \times 5/10 + 4/11 \times 3/10 [+ 1/11 \times 0/10]$ $= 42/110 (= 21/55)$	M2 A1	FT use of consistent incorrect denominator e.g. 120 Full method for finding $P(R, R) + P(G, G) [+ P(Y, Y)]$ M1 for sight of $6/11 \times 5/10$ or $4/11 \times 3/10$ ISW If no marks, SC1 for an answer of 53/121 (method with replacement)
19. (c) $1 - 7/11 \times 6/10$ or equivalent $= 68/110 (= 34/55)$	M2 A1	FT use of consistent incorrect denominator e.g. 120 M1 for $7/11 \times 6/10$ ISW
<u>Alternative method 1</u> $1 - [6/11 \times 5/10 + 6/11 \times 1/10 + 1/11 \times 6/10]$ or equivalent $= 68/110 (= 34/55)$	M2 A1	FT use of consistent incorrect denominator e.g. 120 Full method for finding $1 - [P(R, R) + P(R, Y) + P(Y, R)]$. Allow M1 if any one of the three subtracted products is omitted. ISW
<u>Alternative method 2</u> $4/11 \times 3/10 + 4/11 \times 7/10 + 7/11 \times 4/10$ or equivalent $= 68/110 (= 34/55)$	M2 A1	FT use of consistent incorrect denominator e.g. 120 Full method for finding $P(G, G) + P(G, G') + P(G', G)$. Allow M1 for the sum of any two of these three products NB: $P(1^{st} \text{ sock green})$ is equivalent to $P(G, G) + P(G, G')$ or to $P(G, G) + P(G', G)$ (i.e. credit cannot be given for <u>only</u> $P(1^{st} \text{ sock green}) = 4/11$ without considering compound events) ISW
<u>Alternative method 3</u> $4/11 \times 3/10 + 4/11 \times 6/10 + 4/11 \times 1/10 + 6/11 \times 4/10 + 1/11 \times 4/10$ or equivalent $= 68/110 (= 34/55)$	M2 A1	FT use of consistent incorrect denominator e.g. 120 Full method for finding $P(G, G) + P(G, R) + P(G, Y) + P(R, G) + P(Y, G)$. Allow M1 for the sum of any two of the following $P(G, G)$ $P(G, R) + P(G, Y)$ $P(R, G) + P(Y, G)$ NB: $P(1^{st} \text{ sock green})$ is equivalent to $P(G, G) + P(G, R) + P(G, Y)$ or to $P(G, G) + P(R, G) + P(Y, G)$ (i.e. credit cannot be given for <u>only</u> $P(1^{st} \text{ sock green}) = 4/11$ without considering compound events) ISW
		If no marks, SC1 for an answer of 72/121 [from $1 - 7/11 \times 7/11$] (method with replacement)