



GCSE MARKING SCHEME

AUTUMN 2019

**GCSE
MATHEMATICS – UNIT 1
INTERMEDIATE TIER
3300U30-1**

INTRODUCTION

This marking scheme was used by WJEC for the 2019 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 2019 MARK SCHEME

GCSE Mathematics Unit 1: Intermediate Tier	Mark	Comments
1. $-1(^{\circ}\text{C})$ Up $3(^{\circ}\text{C})$ $-4(^{\circ}\text{C})$	B1 B1 B1	Allow +3 (but not 3) for this B1.
2. Showing (7%) , 60% and 30% OR $7/100$, $60/100$ and $30/100$ OR 0.07 , 0.6 and (0.3) OR three correct calculations for a common amount. 7% 0.3 $3/5$ in order	B2 B1	B2 for all correct %, OR all correct fractions <u>with a common denominator</u> , OR all correct decimals 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 a common format .) Allow any unambiguous indication (e.g. 'converted' values.) Strict FT of 'their work' if at least B1 gained. Correct answer, with <u>no</u> other marks awarded, gains final B1.
3.(a) 2	B2	B1 for sight of -18 (not $-18x$) OR B1 for sight of $(+)20$ (not $20y$ and not -20) Mark final answer.
3.(b) $6g - 9f$	B2	Must be an expression for B2. B1 for sight of $(+)6g$ OR sight of $-9f$. B1 for $6g + -9f$. Mark final answer.
3.(c) $3m = 15$ $m = 5$	B1 B1	FT from $3m = k$. Accept $m = k/3$ (but, if on FT k is a multiple of 3, final answer must be given as a whole number.) B1B0 for ' $m = 15/3$ ' Mark final answer. Allow 2 marks for embedded answer BUT only 1 mark if contradicted by $m \neq 5$. Allow change of letter.
3.(d) $12x - 20$	B1	Must be shown as an expression. C.A.O. Mark final answer.
4. 3 AND 11	B2	Accept in any order. B1 for two numbers with a sum of 14 OR B1 for two numbers with a range of 8. Accept non-integers for B1 marks.
5. $x = 180 - 90 - 50$ or equivalent $= 40(^{\circ})$ (Bearing =) $130(^{\circ})$	M1 A1 B1	May be seen on diagram. OR FT $90 +$ 'their x '. Must be in 3 digit form.
6.(a) 9	B1	
6.(b) $\frac{3}{14}$ ISW	B2	B1 for $x/14$ if $x < 14$. B1 for $3/y$ if $y > 3$. Penalise -1 for incorrect notation, e.g. 3 out of 14, $3 \div 14$, $3 : 14$ etc.

7.	36	B3	B2 for 4, 9 or 12. B1 for 1, 3, 6, 15, 16, 18, 20, 21 24, 25, 27, 28, 30, 33 or 39. B0 for any other numbers.
8.(a)	4.034 kg	B1	
8.(b)	815 cm	B1	
8.(c)	4000 mm ³	B1	
9.(a)	$\frac{60 \times 100}{300}$ or equivalent 20(%)	M1 A1	Allow sight of 20/100, 0.2 for M1. M0 for 60/300 alone.
9.(b)	0.4 × 360 or equivalent e.g. $\frac{360 \times 40}{100}$ 144(°)	M1 A1	
10.	(Area of ABCF =) $91 = 7 \times CF$ (CF = 91/7 =) 13 (cm) (Area CDEF =) $\frac{(13 + 8) \times 6}{2}$ = 63 (cm ²)	M1 A1 M1 A1	<i>Lengths may be shown on the diagram.</i> Allow AB shown as 13(cm) for M1A1. Allow an embedded 13 e.g. $7 \times 13 = 91$ for M1A1. If '13' <u>seen</u> to come from '6 + 7' then M0A0. FT 'their stated or shown length CF'. Must be equal to AB if only AB calculated. Allow M1 for correct intent <u>seen</u> . e.g. $13 + 8 \times 6 \div 2$ (M0 if only unsupported answer of 37 given.)
OCW	Organisation and Communication. Accuracy of writing.	OC1 W1	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 • write a conclusion that draws together their results and explains what their answer means 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
11.(a)	$1 - (0.2 + 0.3 + 0.25 + 0.15)$ or equivalent = 0.1 or equivalent.	M1 A1	
11.(b)	0.3×200 or equivalent. = 60	M1 A1	A final answer of 60/200 implies M1A0.
12.(a)	Reflection in (the line) $x = -2$	B2	B1 for 'reflection' or 'reflected'. B1 for sight of ' $x = -2$ ' or equivalent e.g. $x + 2 = 0$ (written , not simply drawn).
12.(b) (i)	Correct translation.	B2	B1 for translation '5 right'. B1 for translation '6 down'. SC1 for 2 correct vertices.
12.(b) (ii)	$\begin{pmatrix} -5 \\ 6 \end{pmatrix}$	B1	B0 for -5 (missing brackets) OR $\begin{pmatrix} -5,6 \\ 6 \end{pmatrix}$ B0 for $\frac{-5}{6}$ with or without brackets. No FT from part (b)(i).

13.(a)	(Number of sides =) $\frac{360}{36}$ = 10	M1 A1	
13.(b)	$(180 - 36) \times 10$ or equivalent. = 1440(°)	M1 A1	FT 'their number of sides' if >2.
<u>Alternative method.</u> $(10 - 2) \times 180$ or equivalent. = 1440(°)		M1 A1	FT 'their number of sides' if >2.
14.(a)	-5 -2 3	B2	B1 for two correct (in correct position) OR B1 for -6, -5, -2
14.(b)	$6n - 1$ or equivalent	B2	B1 for sight of 6n. Mark final answer.
15.(a)	3^4	B1	
15.(b)	40·84101	B1	
15.(c)	3·6	B1	
16.(a)	Correct construction of angle PQR = 60°. Correct triangle PQR drawn,	M1 A1	Correct construction arcs must be seen and angle drawn. PQ = 7 cm (±2mm) and triangle drawn. Allow non labelling of point P (unless position contradicted). Ignore extension of line QP if correct triangle drawn.
16.(b)	Arc, centre A, intersecting LM at two points AND Intersecting arcs (equal radii) using the above two points as centres. Line drawn	M1 A1	[Note to markers: These arcs may be identified by the fact that they will 'cross the line LM at an acute angle'. Arcs 'crossing the line at 90°' is evidence of an inappropriate method.]
<u>Alternative method.</u> Using the properties of a kite. Intersecting arcs whose centres are any two points on the line LM and respective radii equal in length to the distance from the points to the point A. Line drawn		M1 A1	[Note to markers: The arcs will always intersect at a point that is a 'reflection of point A' in the line LM.]
17.(a)	0·3 shown for 'Does not visit 'Erddig Gardens'. Use of $0·7 \times \dots = 0·28$ P(goes to 'Bersham Heritage Centre') = 0·4 Second set of branches 0·4, 0·6, 0·4, 0·6	B1 M1 A1 A1	Implied by sight of 0·4 (on 'top branch' of the four on the right.) FT 'their 0·4' BUT dependent on M1 gained. (i.e. MOA0A0 for 0·28 and 0·72 on branches.)
17.(b)	$0·7 \times 0·6$ = 0·42 ISW	M1 A1	FT $0·7 \times$ 'their 0·6' only if $0 < \text{'their 0·6'} < 1$ 0·42 gains M1A1.
18.	(area) Volume Length Volume None Area	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.

<p>19.(a) $(x + 7)(x - 3)$ $(x =) -7$ AND $(x =) 3$</p>	<p>B2 B1</p>	<p>B1 for $(x \dots 7)(x \dots 3)$. Strict FT from their <u>brackets</u>. Allow the following. B2 for $x + 7 (=0)$ AND $x - 3 (=0)$ (B1) $(x =) -7$ AND $(x =) 3$ (B1) B1 for $x - 7 (=0)$ AND $x + 3 (=0)$ (B0) $(x =) 7$ AND $(x =) -3$ (B1) FT B1 if only $(x =) -7$ AND $(x =) 3$ seen. (B1)</p>
<p>19.(b) Correct method for clearing <u>all three</u> fractions.</p> <p>Accurate clearing of fractions AND expansion of brackets on lhs.</p> <p>$24x = 36$ or equivalent.</p> <p>$x = \frac{36}{24}$ or equivalent</p>	<p>M1 A1 A1 A1</p>	<p>FT until 2nd error. May be seen in stages. Allow if all over a common denominator. May be seen in stages For collection of terms. FT from 'their $ax = b$' <u>ONLY if M1 gained AND no more than one previous error.</u> If no marks, allow SC1 for sight of $\frac{2(2x - 3) + 5(4x + 5)}{(10)}$ or equivalent. If FT answer is a whole number then it must be shown as an integer. Allow a correct embedded answer of 1.5 or 1½ BUT Penalise -1 if followed by $x \neq 1.5$ or 1½. <u>Note</u> : An answer of 1.5 that is found without gaining M1 OR that is not embedded is zero marks.</p>
<p>20.(a) 40.5 (mm)</p>	<p>B1</p>	
<p>20.(b) $(25.5 + 25.5 =)$ 51 (mm)</p>	<p>B1</p>	
<p>20.(c) $(11.5 + 11.5 =)$ 23 (mm)</p>	<p>B1</p>	