

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.		
-4(°C) Up 3(°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.	B2	B2 for all correct %, OR all correct fractions with a common denominator, OR all correct decimals OR correct work using a common amount, OR a valid combination that allows full comparison. B1 for one correct conversion that still allows a full comparison. comparison. (i.e. allow one error in attempt at a common format.)
7% 0·3 3/5 in order	B1	Allow any unambiguous indication (e.g. 'converted' values.) Strict FT of 'their work' if at least B1 gained. Correct answer, with no 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 ≠ 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 $= 40(^{\circ})$	M1 A1	May be seen on diagram.
(Bearing =) 130(°)	B1	OR FT 90 + 'their x'. Must be in 3 digit form.
6.(a) 9 6.(b) <u>3</u> ISW 14	B1 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 ÷ 14, 3 : 14 etc.

7 20	Da	D0 for 4 0 or 40
7. 36	В3	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	Bo for any outer manners.
8.(b) 815 cm	B1	
8.(c) 4000 mm ³	B1	
9.(a) <u>60</u> × 100 or equivalent	M1	Allow sight of 20/100, 0⋅2 for M1.
300		M0 for 60/300 alone.
20(%)	A1	
9.(b) 0·4 × 360 or equivalent e.g. <u>360</u> × 40	M1	
100	A1	
144(°)		
10.		Lengths may be shown on the diagram.
(Area of ABCF =) 91 = 7 × CF	M1	
(CF = 91/7 =) 13 (cm)	A1	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.
(Area CDEE -) (42 : 0) :: 0	N 4 4	ET (the in state of an above law with OE)
(Area CDEF =) (13 + 8) × 6	M1	FT 'their stated or shown length CF'.
2		Must be equal to AB if only AB calculated.
		Allow M1 for correct intent <u>seen</u> . e.g. 13 + 8 × 6 ÷ 2
		(M0 if only unsupported answer of 37 given.)
$= 63 \text{ (cm}^2)$	A1	(ivio ii offity difsupported ariswer of 37 given.)
OCW Organisation and Communication.	OC1	For OC1, candidates will be expected to:
OCVV Organisation and Communication.	001	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
		results and explains what their answer means
Accuracy of writing.	W1	For W1, candidates will be expected to:
		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	M1	
= 0·1 or equivalent.	A1	
11.(b) 0·3 × 200 or equivalent.	M1	
= 60	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. $x + 2 = 0$
12 (h) (i) Correct translation	DO	(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) /-5\	B1	
12.(b) (ii) $\begin{pmatrix} -5 \\ 6 \end{pmatrix}$		B0 for -5 (missing brackets) OR (-5,6)
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		B0 for -5 with or without brackets.
		6
		No FT from part (b)(i).
	<u> </u>	140 1 1 110111 part (0)(1).

13.(a)	(Number of sides =) 360	M1	
10.(4)	36		
	= 10	A1	
13.(b)	(180 – 36) × 10 or equivalent. = 1440(°)	M1 A1	FT 'their number of sides' if >2.
Alternati	ive method.		
	(10 – 2) × 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.
ÀND	Arc, <u>centre A</u> , intersecting LM at two points Intersecting arcs (equal radii) using the above two points as centres.	M1	[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.]
	Line drawn	A1	
Using the Intersection	ive method. The properties of a kite. The properties of a kite. The properties of a kite. The properties are any two points on the point and the points to the point A.	М1	[Note to markers: The arcs will always intersect at a point that is a 'reflection of point A' in the line LM.]
	Line drawn	A1	
17.(a)	0·3 shown for 'Does not visit 'Erddig Gardens'.	B1	
	Use of $0.7 \times = 0.28$	M1	Implied by sight of 0·4
P(gc	oes to 'Bersham Heritage Centre') = 0.4	A1	(on 'top branch' of the four on the right.)
Seco	nd set of branches 0·4, 0·6, 0·4, 0·6	A1	FT 'their 0·4' BUT dependent on M1 gained. (i.e. M0A0A0 for 0·28 and 0·72 on branches.)
17.(b)	0·7 × 0·6	M1	FT $0.7 \times$ 'their 0.6 ' only if $0 <$ 'their 0.6 ' < 1
	= 0·42 ISW	A1	0·42 gains M1A1.
18.	(area) Volume Length Volume None	В3	Must use the terminology given in the question. B3 for all 5 correct. B2 for 3 or 4 correct. B1 for 2 correct. B0 otherwise.
	Area		Bo otherwise.

19.(a) $(x+7)(x-3)$ (x=)-7 AND $(x=)3$	B2 B1	B1 for (x 7)(x 3). Strict FT from their <u>brackets</u> .
(x) 1 / 112 (x) 0	Ο,	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)
		FT until 2 nd error.
19.(b) Correct method for clearing <u>all three</u> fractions.	M1	May be seen in stages.
Accurate clearing of fractions AND	A1	Allow if all over a common denominator.
expansion of brackets on lhs.	,	May be seen in stages
·		,
		_ ,,,,,
24x = 36 or equivalent.	A1	For collection of terms.
x = 36 or equivalent	A1	FT from 'their ax = b' ONLY <u>if M1 gained AND no</u>
$x = \frac{36}{24} \text{or equivalent}$		more than one previous error.
		If no marks, allow SC1 for sight of
		$\frac{2(2x-3)+5(4x+5)}{(10)}$ or equivalent.
		(10)
		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 $x \ne 1.5$ or $1\frac{1}{2}$.
		Note: An answer of 1.5 that is found without gaining
		M1 OR that is not embedded is zero marks.
20.(a) 40·5 (mm)	B1	
20.(b) (25·5 + 25·5 =) 51 (mm)	B1	
20.(c) (11·5 + 11·5=) 23 (mm)	B1	