GCSE MARKING SCHEME

AUTUMN 2018

GCSE
MATHEMATICS
UNIT 1 - INTERMEDIATE TIER
3300U30-1

INTRODUCTION

This marking scheme was used by WJEC for the 2018 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.

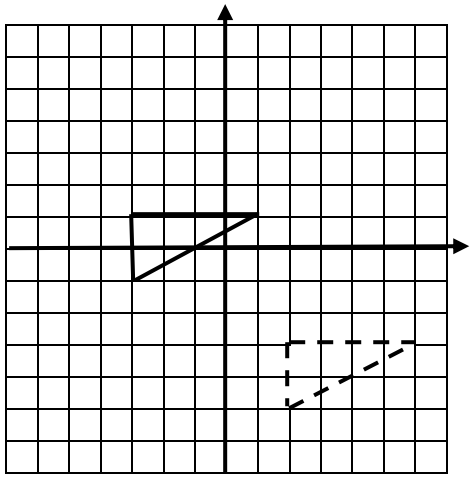
WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

WJEC GCSE MATHEMATICS (3300U30-1)

AUTUMN 2018 MARK SCHEME

GCSE Mathematics **Unit 1: Intermediate Tier**	**Mark**	**Comments**
1.(a)(i) 27 64 125	B2	B1 for any two correct answers (in any order). Penalise −1 if more than three numbers given.
1.(a)(ii) 36	B1	B0 if any extra numbers given.
1.(a)(iii) 27	B1	Allow 3 × 27 or 27 × 3 to imply correct answer. B0 if any extra numbers given.
1.(b) 'Dividing 125 by 4 …….'.	B1	B0 for 'Dividing 4 by 125 …..'
2.(a) Correct scale drawing BAC = 55° AB = 6cm AND AC = 8cm AND triangle drawn	 B1 B2	Allow tolerance of ±2mm and ±2°. Labelling need not be shown if vertices can be unambiguously identified. B1 for AB = 6cm OR AC = 8cm.
2.(b) Length of 'their BC' × 3 = 20·1	 M1 A1	Allow tolerance of ±2mm for 'their BC'. FT from 'their BC'. ISW if correct evaluation <u>seen</u> (eg 20·1 rounded to 20) If <u>no attempt</u> at 2(a) then allow SC1 for an answer between 10·2 and 11·4 inclusive.
3.(a) 8x − 6y or 2(4x – 3y)	B2	Must be in an expression for B2. B1 for sight of (+)8x or −6y. B1 for 8x + −6y Mark final answer.
3.(b) 2m = 19 m = 9½ or 19/2 or 9·5	B1 B1	FT from 2m = k. Accept m = k/2 (but, if on FT k is even, final answer must be given as a whole number.) B0 for '9 rem 1'. Mark final answer. Allow 2 marks for embedded answer BUT only 1 mark if contradicted by m ≠ 9½.
3.(c) 1	B2	B1 for sight of −20 or sight of (+)21. But not −20f (+)21g. Mark final answer.
4. x + 7 + 8 = 18 or equivalent. x = 3 (Area =) 6 × (3 + 2) = 30(cm^2)	M1 A1 M1 A1	 May be seen on the diagram OR implied by 3 + 7 + 8 (=18) for M1A1. FT 'their derived or stated value for x'.
5.(a) $\frac{60 \times 300}{2000}$ OR $\frac{59 \times 300}{2000}$ OR $\frac{60 \times 301}{2000}$ = 9 = 8·85 or 8·9 or 9 = 9·03 or 9	M1 A1	Must be seen. M0 for exact calculation. Do not accept any other approximated values. Unsupported answer is M0A0.
5.(b)(i) 19·437	B1	
5.(b)(ii) 34·1	B1	Accept 34·10

6. Recognising that each number has a one in five chance of being chosen.	B1	May be expressed in words e.g. ' 2 (even) numbers out of 5', ' each number has a one in 5 chance' OR as a probability e.g . sight of 2/5, '(probability of choosing each ball =) 1/5' B0 if no reference to ' out of 5' or 'in 5'.
(Expected number of even numbers =) $\frac{2}{5} \times 75$	M1	M1 for $1/5 \times 75 \times 2$ or equivalent. M1 implies the B1.
$= 30$	A1	30/75 gains B1M1A0 if 30 on its own is not shown.
Organisation and Communication.	OC1	For OC1, candidates will be expected to: • 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.	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.
7.(a) 214°	B1	
7.(b) (i) A	B1	
7.(b) (ii) E	B1	
8.(a) a = 52°	B1	
b = 52°	B1	OR FT b = 'their a'.
c = 64°	B1	
8.(b) x = 64°	B1	OR FT x = 'their c'.
y = 64°	B1	OR FT y = 180 – 52 – 'their x'. OR FT y = 180 – 64 – 'their a' OR FT y = 180 – 'their a' – 'their c' OR FT y = 180 – 'their b' – 'their c'
Isosceles.	B1	C.A.O. Dependent on values given for both x and y AND two equal angles in triangle LMN AND x + y = 128.

9.(a) 	B2	If B2 not awarded B1 for reflection in x-axis. B0 if choice of reflections. OR B1 for a correct translation of 'their drawn reflection'.
9.(b) (−3, 5)	B1	
10.(a) $3x^3 - 6x$	B2	Must be in an expression for B2. B1 for sight of (+)$3x^3$ or −6x. Mark final answer.
10.(b) $3g = 2 - f$ or $f - 2 = -3g$ $g = \frac{2-f}{3}$ or $g = \frac{f-2}{-3}$ or $g = \frac{2}{3} - \frac{f}{3}$	B1 B1	FT only from $\pm 3g = \pm f \pm 2$. B1B0 for $-g = \frac{f-2}{3}$. B1B0 for $g = 2 - f \div 3$. B1B0 for $\frac{2-f}{3}$ ('g=' missing). Mark final answer.
10.(c)(i) $7x < 32$ $x < 32/7$ or $x < 4^4/_7$	B1 B1	Use of '=' is B0B0 unless replaced for final answer. FT from $7x < k$. Allow $x < 4{\cdot}57(\ldots)$. Do not allow $x < 4{\cdot}6$ or $x < 4{\cdot}5$ unless $x < 4{\cdot}57(\ldots)$ seen. Mark final answer. Penalise consistent use of '≤' by−1
10.(c)(ii) 4	B1	OR F.T. 'their answer (inequality) in (c)(i)' if $x < a$. No FT from $x \le a$. 4x is B0.
11. Angle BAC bisected OR Unique point P shown within tolerance of angle bisector Arc, radius 6 cm, centre B OR Unique point P shown 6 cm (± 2mm) from B Correct point P shown.	 B1 B1 B1	*Allow ± 2° and ± 2mm* Accept correct construction or use of protractor. Of sufficient length to be identified. Allow FT from any previous B0 if equivalent decision required for identifying position of P. i.e. An arc, centre B, intersects a straight line drawn from A at two points, with only one of these points over 10 cm from A. A correct point P gains all 3 marks.

12.(a)	Sight of (£)720 ÷ 9 or (£)80 (£)160 AND (£)560	M1 A1	 Allow in any order. Allow (£)160 : (£)560 or (£)560 : (£)160 Sight of (£)160 or (£)560 implies M1
12.(b)	5	B2	B1 for sight of $\frac{1}{0{\cdot}2}$ or $\frac{10}{2}$ or $\frac{5}{1}$ or equivalent. Mark final answer.
13.(a)	$3{\cdot}14 \times 10^2 \times 20$ or $\pi \times 10^2 \times 20$ $= 6280\ (cm^3)$	M1 A1	 M1 A0 for 2000π. Allow M1A1 if 6280 seen in 13(b)
13.(b)	6 (litres)	B1	**A strict** FT of 'their 6280' /1000 and truncated. Truncation is required for the B1.
14.	Median value > 6 Total of five numbers < 40 Range < 12	B1 B1 B1	Possible to allow if enough boxes completed to ensure median > 6. All boxes must be completed. All boxes must be completed. Penalise −1 once from any marks gained if a negative number or a number ≥ 20 or non-whole numbers used.
15.(a)(i)	49	B1	
15.(a)(ii)	1	B1	
15.(a)(iii)	15	B1	
15.(a)(iv)	$\frac{1}{81}$	B1	
15.(b)	(n =) 30	B2	Allow for an answer of 2^{30}. B1 for sight of $2^2 \times 2^{28}$ or $2 \times 2 \times 2^{28}$.
16.	AOB = 148(°) Angle subtended by an arc at the centre of a circle is twice the angle subtended at the circumference. $x = \frac{180 - 148}{2}$ $= 16$	B1 E1 M1 A1	May be seen on the diagram. Do not accept 148 unless unambiguously associated with angle AOB (stated, or on diagram, or used for M1) Dependent on 2 × 74 (= 148) seen. Accept any unambiguous wording. E0 for simply stating 'twice 74'. FT 'their derived or stated angle AOB'. NOT 74°. x = 90 – 74 is B1E0M1 (E1 if a full and accurate explanation is given.) Unsupported (x =) 16 gains B1E0M1A1.
17.(a)	0·32	B1	
17.(b) (i)	600 × 0·34 = 204	M1 A1	
17.(b)(ii)	204 – 600/6 =104	M1 A1	FT 'their 204'. M1A1 for '104 out of 600' BUT M1A0 for '104/600'. FT for A1 provided answer is a positive integer.
18. Sight of at least two correct different surface areas. $2 \times (35 + 5x + 7x) = 142$ or equivalent. $x = 3$		B1 M2 A1	Sight of two of $35(cm^2)$, $5x(cm^2)$, $7x(cm^2)$. Allow M1 for 'sum of at least 3 correct surface areas = 142'. C.A.O. If M0, allow SC1 for x = 3 with no prior equation shown.