GCSE MARKING SCHEME

AUTUMN 2016

MATHEMATICS (NEW)
UNIT 2 - FOUNDATION TIER

3300U20-1

INTRODUCTION

This marking scheme was used by WJEC for the 2016 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.

GCSE Mathematics Unit 2: Foundation Tier Autumn 2016	Mark	Comment
1. (a) 3.6(0) 1.05 12 10	B1 B1 B1 B1	Condone spurious units.
1. (b) (i) (£)23.77 or 2377(p)	B1	B0 for 23.77p or £2377.
1. (b) (ii) (£)24	B1	F.T. 'their total'
1. (b) (iii) (£)20	B1	F.T. 'their total'
2. FALSE FALSE TRUE FALSE	B2	B1 for 3 correct.
3. 1, 2, 10 OR 2, 4, 5 Organisation and Communication Accuracy of writing.	B3 OC1 W1	B2 for identifying any 3 factors of 20 with sum $\leq$10 or $\geq$15. B1 for listing at least 4 factors of 20, with no more than 2 incorrect numbers. 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 explanations and working in a way that is clear and logical 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.
4. (a) 16 (points)	B1	
4. (b) Median = 20	B2	B1 for 12 16 16 17 20 23 26 28 61 (ascending or descending)
4. (c) Sum of numbers (219) Sum of numbers / 9 24(.3… points)	M1 m1 A1	Allow for an unsupported value between 158 and 280 Award this m1 for 'their sum' ÷ 9 CAO
5. (a) 8*a*	B1	
5. (b) 15 11 Subtract 4 (from the previous term).	B1 B1	Both numbers required. Accept – 4 or –4n+23.
6. 1 and 17	B3	B2 for either 1 or 17. B1 for current range = 12 OR new range = 14
7. (a)(i) (Head, 1) Tail, 1 Head, 2 Tail, 2 Head, 3 Tail, 3 Head, 4 Tail, 4	B2	Award B1 for a minimum of 4 additional correct ordered pairs. B1 for H1, 2, 3, 4 AND T1, 2, 3, 4
7. (a)(ii) 1/8 (ISW)	B2	F.T. sample space in part (a) only if at least B1 awarded. B1 for the numerator of 1 in a fraction < 1 OR B1 for the denominator of 8 in a fraction <1 Allow B1 for "1 out of 8", "1 in 8" OR "1:8".
7. (b) No as every number on a dice has an equal chance of being thrown.	B1	Accept equivalent statements.

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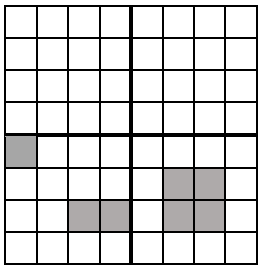
8.(a) 59 or 61	B1	Still only B1 if both given (with no incorrect value(s)). B0 if any incorrect value given.
8.(b) 64	B1	Do not accept 4^3 or 4×4×4 unless 64 also shown.
8.(c) 62	B1	Do not accept 186/3 unless 62 also shown.
8.(d) 58	B1	Do not accept 7·25×8 unless 58 also shown.
9. (a) 30°	B1	
9. (b) 270°	B1	
10. 	B3	B1 for each individual shape. Penalise −1 if more than 7 squares are shaded. Ignore clearly deleted shading.
11. (Interior angle =) $55^{(o)}$ (x =) 360 – (117 + 74 + 55) = 114(°)	B1 M1 A1	For sight of $55^{(o)}$. May be on diagram. F.T. 'their 55' but not 125°. *<u>Alternative method</u>* *(x=) 180-74-117+125 or equivalent M2* *= $114^{(o)}$ A1*
12.(a) $3x = 12$ $x = 4$	B1 B1	 F.T. from $3x = k$. x = 12/3 is B1B0 Allow an embedded answer. Mark final answer.
12.(b) 21	B1	
12.(c) 2x + 6	B1	
13. e.g. 1·1 × 100 or equivalent. = 110 0·9 × 110 or equivalent. = 99 AND 'FALSE'	M1 A1 M1 A1	Candidates may use any value or amount. F.T. 0·9 × 'their answer'. Accept any equivalent indication that statement is 'FALSE'. *<u>Alternative method</u>* *Sight of either 1·1 OR 0·9* *AND <u>used in calculation</u> B1* *1·1 × 0·9 M1* *= 0·99 A1* *Convincing statement. A1*
14. FALSE TRUE TRUE FALSE	B2	B1 for 3 correct.
15. Up 4(°C) −1(°C) −4(°C)	B1 B1 B1	Allow +4 (but not 4) for this B1.

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16. (Diameter of circle =) 80 ÷4 = 20(cm)	M1 A1	May be seen on the diagram as a side or a diameter. Radius (or '½ a side') =10; stated, used or seen on the diagram implies M1A1.
(Circumference =) π×20 or 2×π×10 or equivalent = 62·8(cm)	M1 A1	F.T. 'their derived diameter (not 10 and not 80) or derived radius(not 20 and not 80). Must be given to 1dp.
17. (a) Correct reflection in $y = 2$	B2	B1 for a correct reflection in $x = 2$ or for sight of line $y = 2$.
17. (b) Anticlockwise rotation of 90° about the origin.	B3	For all **four** components. Accept clockwise rotation of 270° about the origin B2 for any three. B1 for any two. Treat '¼ turn' as one component. 'Origin' may be stated as (0,0) or 0 or O. Allow e.g. 'in the origin', 'around the origin'.