GCSE MARKING SCHEME

SUMMER 2017

GCSE (NEW)
MATHEMATICS NUMERACY - UNIT 2 (FOUNDATION)
3310U20-1

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INTRODUCTION

This marking scheme was used by WJEC for the 2017 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.

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GCSE Mathematics – Numeracy **Unit 2: Foundation Tier** **Summer 2017**	Mark	Comment
1.(a) 50 (miles)	B1	
(b) 5×2×50 500 (miles)	M1 A1	FT 'their 50' If no marks awarded, award SC1 for 250 (miles), or an accurate answer to 5×'their 50' or 7×2×'their 50'
(c)		Abergavenny to Gloucester 45(miles) Gloucester to Bristol 36 (miles)
(alternative route distance=) 45 + 36	M1	Addition of **<u>two</u>** distances from the table, with at least one of 45 and 36 included.
81 (miles)	A1	CAO. Unsupported 81 gets M1 A1. Sight of (extra distance per day = 81 – 50=) 31 or a value for 81 – 'their 50' implies M1A1
(extra distance=) (81 − 50) × 2 or equivalent.	M1	FT 'their 50' if first M1 awarded and 'their 81' providing first M1 awarded and 'their 81' > 'their 50'
=62 (miles)	A1	FT if first M1 awarded. If last M1 not awarded, award SC1 for 31 (miles) ISW

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2(a)(i) (Total cost =) (£)39.99+ 2 × 11.98 + 3 × 2.99 = (£)72.92	 M2 A1	 M1 for an attempt to add any two of the three required costs. FT provided M1 awarded If no marks awarded Sc1 for (£)54.96 from (£)39.99+ (£)11.98 + (£)2.99
2(a)(ii) (Gwyn's current order total cost =) (96.62 + 6.99) = (£)103.61 (Gwyn's order plus socks total cost =) (96.62 + 2 × 2.99) = (£)102.6(0) 'Lower cost as no delivery charge' (yet more items ordered) 'If he didn't buy the socks, the delivery charge would apply which is more than the cost of the socks'.	 B1 B1 E1	 B2 'Gwyn makes a saving of (£)1.01' Allow for E1 Statements indicating 'free delivery' or reference to cost of socks. Calculations with words that 'reference the delivery cost OR cost of socks'. Do NOT allow for E1 Calculations without any reference or explanation. 'because it will be cheaper by £1.01' with no further comment. Ignore incorrect statements regarding savings, along with a correct answer e.g. He saves £1.1 because of the free delivery charge. Alternative: *Stating (2 × 2.99=) (£)5.98 makes the total greater than £100. B1* *Compare (£)6.99 and (£)5.98 B1* *Lower cost as no delivery charge (yet more items ordered) E1*
2(b)(i) (£)168	B1	
2(b)(ii) 15/100×200 (£)30 and a statement that he is correct	M1 A1	Or equivalent method 32/200(×100%) Or 16% and a statement that he is correct.
2(b)(iii) 43(%)	B1	
2(c) Ordering at least one set of data (David) 1 1 1 2 5 7 8 (Gwyn) 1 1 1 2 4 6 12 At least one median is 2 A comment explaining that the medians are the same.	 M1 A1 E1	 E0 for unsupported comments.

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3 (a) A Cuboid B Cylinder	B1 B1	
(b)(i) $\frac{3 \times 270}{5}$ 162(g)	M1 A1	If no marks awarded SC1 for (3×270)= 810 or ($\frac{270}{5}$) = 54
(b)(ii) 100	B2	Award B1 for 2×120 or 240÷2 or use of 50 and a relationship between 120 and 240 e.g. 50÷2=25. Do not award B1 for 25 unsupported.
(c) A correct net of a cube with 6 faces. Lengths of sides of squares 3cm	B1 B1	SC1 for the net of an open box. 5 faces of correct size. Ignore the inclusion of 'tabs'.
(d) (Total cost of 20 candles and boxes) (2.35 + (0.)15) × 20= (£)50 (Profit is £84 − £50=) (£) 34. Organisation and communication Writing • Consistent use of £ and p. • Correct use of = sign.	 M1 A1 B1 OC1 W1	 Or equivalent CAO May be implied in further work. Or equivalent FT 'their (£)50' provided 20 is used with candles or boxes and 'their (£)50 < (£)84. 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 • write a conclusion that draws together their results and explains what their answer means 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.

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4(a) 09:12	B1	
4(b) 14:55 or 2:55 p.m. or 'five to three'	B2	For B2 allow indicates 14(:)00 bus with 5 minutes to spare Accept times given in 24hr or a.m. format throughout. Allow 2(:)55, 2(:)55 p.m. and 14(:)55p.m. Do **not** allow 2:55 a.m. or 02:55 B1 for idea to look at multiples of 24 minutes from 12 noon, with at least: (12(:)24, 12(:)48 and) 13(:)12 seen or 1(:)12 p.m., OR 60 ÷ 24 = 2.5, OR next bus on the hour is 14(:)00, OR catches 14(:)00 bus, 2 p.m. bus, or 2 o'clock bus Allow B1 for the time sequence 12(:)24, 12(:)48 with 1(:)12, but do not allow with 1(:)12 a.m. Allow use of decimal point, a gap, no gap as a 'spacer' in time throughout
5. 0.4(0) × 65 or (100 ×) 28/65 26 (days) or 43(.07.. %)	M1 A1	Allow sight of 65 × 40% ÷ 100 If 43(...%) not shown, accept sight of 0.43... **with** 0.4(0) Accept sight of 26/65 for M1, A1 Accept without units, however, if units are given they must be correct Must follow from correct working, unless unsupported (- check if a partitioning method is correct for find finding %) Allow a slip in further working following award of M1, A1 provided it does not impact on the conclusion
Conclusion e.g. 'Luigi is correct (as 43% > 40%)', 'Luigi is correct (as it **only** rained on 26 days in west Wales)', 'Luigi is correct' (sight of $\frac{28}{65}$ and $\frac{26}{65}$)	E1	Depends on M1 previously awarded, FT only provided: 'their 43%' > 40% or 'their 26 days' < 28 days Accept an answer 'Luigi is correct' if units are given correctly in workings, with like with like comparison *Alternative (considering did not rain)* *(Did not rain for Luigi 65 – 28) 37 (days), FT 'their 65 – 28'* *0.6(0) × 65 or (100 ×) 37/65 M1* *39 (days) or 56.9(...%) or 57(%) A1* *Conclusion, e.g.* *'Luigi is correct (as 57% < 60%) E1* *Depends on M1 previously awarded* *FT provided:* *'their 39 days' > 37 days or* *'their 56.9%' < 60%*

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6 (a) 20%	B1	
6 (b) 38%	B1	
6(c) States or implies ‘No’ AND gives a reason, e.g. ‘Don’t know how many members there are in total’, ‘Hadon’s Gym could be a very small gym’, ‘Workout Palace could be a very large gym’, ‘because it does not say how many people are in either gym’, ‘we don’t know about the number of people’, ‘it doesn’t tell us how many men in the gyms’	E1	Ignore further spurious or irrelevant explanation if ‘no’ selected or unambiguously implied Allow, e.g. ‘don’t know because there are no numbers to indicate that there are more men’, Do not accept, e.g. ‘there is about the same number of men as women in both gyms’, ‘there are fewer children in Hadon’s gym so that means the percentage of men goes up’, ‘we don’t know the percentages’, ‘they asked different people’
7(a) No correlation or none	B1	Accept a description, e.g. 'there is no relationship', ‘no trend’, ‘height and mass do not depend on each other’ Allow, e.g. ‘not negative or positive’ Do not accept, e.g. ‘scattered’, ‘neutral’, ‘spread out’, ‘random’, ‘indirect’ ‘No pattern’
7(b) 55 cm	B1	

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8(a) 42 × 3½ 147 (miles)	M1 A1	Do not accept 42 × 3.3 or 42 × 210
8(b) Reason, accept any reasonable response based on information given not being totally accurate, e.g. 'traffic could be different', 'doesn't mean Glenda's average speed for the Flint to Cardiff journey will be 42 mph', '3½ hours might have been given to the nearest ½ hour', 'might not have been exactly 3½ hours', 'average speed could be different', 'only know the average speed for one journey'	E1	Do not credit a correct reason if a contradiction is given Allow, e.g 'she could drive faster (or slower)', 'she may have gone a longer route', 'she may have taken a shorter route', 'we don't know how long she will take this time', 'she could drive faster and get there in less time', 'because the calculation was the average distance', Do not accept the idea that this journey was at an average speed of 42mph but that her speed changed during her journey, e.g. 'it was her average, she might have gone faster for a while and slower for a while', 'her speed may have changed over her journey', 'she could have stopped on the journey', 'I don't know the exact distance', '42 mph means she would have to be travelling at this speed all the way', Do not accept 'only know the average speed'
9(a) 1125 g	B1	
9(b) $\frac{5 \times 428 - 160}{9}$ 220 (°C)	M1 A1	Needs to show intention to calculate 5×428 These answers imply M0, A0 • ((5428 – 160) ÷ 9 =) 585.33... • (5428 – 160 ÷ 9 =) 5410.22... CAO

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10(a) 172.5 (miles per hour)	B1	ISW
10(b) Alun 23 (miles per hour) Nikita 20 × 1150.779 ÷ 1000 or 1150.779 ÷ 50 or equivalent 23.01(558..) or 23.02 (miles per hour) Difference 0.02 (miles per hour to 2 d.p.)	B1 M1 A1 B1	 CAO *Alternative* *Sight of difference 0.000779 B1* *Difference = 0.000779 × 20 M1* *= 0.01(558) A1* *0.02 mph (2dp) B1 CAO*
11(a)(i) 5	B1	
11(a)(ii) (At least) 28 (pupils)	B1	
11(a)(iii) Assumption stated e.g. 'no one was absent', 'all pupils present on the test day', 'everyone in the class took the test that day'	E1	Needs to show understanding that the number of pupils doing the test may not be the number of pupils in the class Do not accept a description of the method, e.g. 'adding the number of test scores gives the number of pupils', 'used the number of test marks', 'used the numbers who did the test', UNLESS the candidate continues to state an assumption
11(b) Catrin '<u>incorrect</u>' selected or unambiguously implied with a reason, e.g. '(18 Year 9 pupils but) **only** 4 Year 10 pupils scored 9 or higher', '**only** 2 Year 10 pupils scored 10 or higher', 'more pupils with higher marks in Year 9', '18 pupils in Year 9 scored >8, compared with only 4 pupils in Year 10'	E1	If numbers are given within a reason they must be correct Accept a response based on the means, with mean for Year 9 as 7.46.. and Year 10 is 7.38.. If 'incorrect' selected or unambiguously, allow e.g. 'the mode for Year 10 is 8 (marks), but the mode for Year 9 is 9 (marks)', 'Year 9 mode is higher at 9 (marks)', Do not accept, e.g. 'the highest score in Year 9 is 12, whereas only 10 in Year 10', 'Year 9 had 2 pupils with full marks', 'Some pupils in Year 9 had full marks' *Alternative:* *Catrin '<u>correct</u>' with a clear reason based on the majority of higher scores, e.g.* *'Yr10 20 people scored 8 or more, Yr9 18 people scored 8 or more'* Note: Unless the mode is considered, there must be comparison of a range of marks

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12 (Each van uses) 256 ÷ 8 (= 32 litres per day) **OR** (Each truck uses) 704 ÷ 5.5 (= 128 litres per day)	B1	May be embedded in further working
(Cost for 6 vans) 1.1(0) × 6 × 256÷8 (= £211.20) **AND** (Cost for 10 trucks) 1.1(0) × 10 × 704÷5.5 (= £1408)	M3	May be shown in stages Award of any M mark implies award of previous B1 M2 for <u>either</u> of the 6 vans <u>or</u> 10 trucks full calculations (shown opposite), or M2 for both 6 vans <u>and</u> 10 trucks calculations with '×1.1(0)' omitted, i.e. (total number of litres of fuel) 6 × 256÷8 (= 192 litres) **AND** 10 × 704÷5.5 (= 1280 litres) M1 for <u>either</u> 6 vans <u>or</u> 10 trucks calculations with '×1.1(0)' omitted, i.e. 6 × 256÷8 (= 192 litres) **OR** 10 × 704÷5.5 (= 1280 litres), or M1 for fuel 1 van <u>and</u> 1 truck, i.e. (256÷8 =) 32 **AND** (704÷5.5 =) 128
	A2	Sight of (£)35.2(0) and (£)140.8(0) or (£)176 is award B1, M1 (from 1.1 × 32 and 1.1 × 128)
(Total cost of fuel is) (£) 1619(.20)		CAO Depends on M3 or M2 previously awarded, award A1 for any 1 of: • the cost for 6 vans (£)211(.20) • the cost for 10 trucks (£)1408 • total fuel used 1472 (litres)

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