GCSE MARKING SCHEME

SUMMER 2017

GCSE (NEW)
MATHEMATICS NUMERACY - UNIT 1 (FOUNDATION)
3310U10-1

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.

GCSE Mathematics – Numeracy Unit 1: Foundation Tier Summer 2017	Mark	Comment
1(a) (£)125000	B2	Award B1 for sight of 125123 For B1: FT their answer to 269885 - 144762 correctly rounded to the nearest 1000 Allow B1 for sight of 270000 and 145000
1(b) No stated or implied with correct reason given, e.g. 'No because (only) Anglesey, Carmarthenshire and Neath Port Talbot are less than £180000' 'No because (only) £171684, £158973 and £144762 are less than £180000' 'No because there are (only) 3 prices less than £180000' 'No because there are 3 prices more than £180000' 'No because there are 3 prices less than £180000 and 3 prices more than £180000' 'No because ½ of them are more than £180000' 'No because ½ of them are less than £180000' 'No Cardiff, Powys and Ceredigion are more than £180000'	E1	The statement given must imply 3 or ½ Allow e.g. 'No only 3 countries are less than £180000' If yes stated or implied E1 may be awarded provided reason clearly implies 'no'. e.g. 'He is correct because ½ the houses are less than £180000' (contradiction) Do not allow 'Owen correct because average house price in Neath Port Talbot is £144762' 'No Owen not correct because some of the houses are over £180000 like Cardiff and some are less than' Note: Candidates may refer to the counties as houses, prices, countries……..
1(c) £200 000	B1	
2(a) Evidence of counting area in either biscuit Area of Tamsin's biscuit in range 17 – 25 (cm^2) AND Area of Sophie's biscuit in range 22 – 27 (cm^2) AND conclusion given (yes). The conclusion must be consistent with their area values within the ranges given	M1 A2	Look at diagram Award A1 for either area in the range. One correct area implies M1 Allow 'no' if areas are within the ranges given and Tamsin's area is greater than or equal to Sophie's A2 cannot be awarded unless a conclusion is given.
2(b) Table set up with rows or columns: • with all 4 biscuits listed correctly. • Labelled with tallies • Labelled with frequency or equivalent as a heading	 B1 B1 B1	 Accept other biscuits also listed and/or use of "other". Accept abbreviations. Accept tallies drawn Accept total or number of people for frequency

2(c) 3 × 3 × 200 or 30 ÷ 10 × 200 × 3 1800(p) or (£)18(.00)	M2 A1	Award M1 for sight of 3 × 3 or 9 (cost of 1 biscuit) or 3 × 200 or 600 (pence per 10 cm^2 across 200 biscuits) or 30 × 200 or 6000 (total surface area) CAO Allow A1 for £18.00p Award A0 for £1800 or 18p or 18.00p Watch for a method of 3 × **30** × 200 or 3 × 30 = 90 and then 90 × 200 = (£)180 or 18000(p). This would gain M1 only The answer must come from a correct method not from a place value error e.g. 18000p = £18
3(a)(i) 3 (miles)	B1	Accept any indication of 3 miles such as 3.00 (miles)
3(a)(ii)1 hour 56 minutes 33 seconds	B1	Accept any indication of correct time e.g 1:56:33, 1 56 33, 1.56.33
3(b) FALSE TRUE TRUE FALSE	B2	Award B2 for all correct Award B1 for 3 correct
3(c) 9 minutes (and) 31 seconds	B1	Allow 9 31 or 9:31 or 9.31 or 9 mins 31 or 9 31secs or 09:31 or 09.31 Do not accept 9.31 mins or 9.31 secs

4(a) An attempt at multiplying the hours for at least 1 day by 8	S1	May be implied in later working
(From Tuesday to Friday) 17 hours	B1	Working with 17 hours from Tuesday to Friday this may be seen or implied by sight of eg 138 or (120 **and** 18) or (15 **and** 2) or 18 or 136 or (12 **and** 5)
(Pay for Tuesday to Friday) 15 × (£)8 + 2 × (£)9 (=120 + 18) or 17 × (£)8 + 2 × (£)1 (=136 + 2) or 3½×8 + 4×8 + 4½×8 + 3×8 + 2×9 (28 + 32 + 36 + 24 + 18 =138)	B2	FT (their 17 – 15) × (£)9 Award B1 for sight of either 15 × (£)8 or 2 × (£)9 or 120 or 18
(Saturday pay) 3× 2 × (£)8 (=48)	B1	
(Total pay) (£)186(.00)	B1	CAO If last B1 not awarded **and no** marks awarded from the **B2 section** then award SC1 for answers in the range (£)184 to (£)189 from appropriate working **provided no numerical errors made.** (This is from not dealing with the Friday and extra hours) E.g. 28 + 32 + 38 + 42 + 48 = 187 award S1 B1(have worked with 17 hours) B0 B1 B0 SC0 (4½ × 8 and 5 × 8 not correct and addition of values also not correct) Common answers of 28 + 32 + 36 + 40 + 48 = 184 Award S1 B1 B0 B1 B0 SC1 (no extra hours) 28 + 32 + 36 + 45 + 48 = 189 Award S1 B1 B0 B1 B0 SC1 (5 extra hours) 184 + 'their 2' "extra" hours Award S1 B1 B0 B1 B0 SC1
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 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
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.

4(b) £37.60	B1	
5. (potatoes for 6 people =) 30 (ounces) (potatoes for 6 or 30 ounces =) 30 × 28 = 840 (grams) (Scale reading =) 480 (grams) (Need 840 – 480 =) 360 (grams)	B1 M1 A1 B1 B1	FT 'their 30 ounces' (including 10 ounces) FT 'their 840' and 'their 480' provided FT answer >0 **Alternative method for the first 3 marks:** (potatoes for 2 people or 10 ounces=10 × 28) = 280 (grams) B1 (potatoes for 6 people or 30 ounces=) 280 × 3 M1 **FT 'their 10 × 28' × 3 for M1 and possible A1 if 'their 10 × 28' × 3 correctly evaluated.** 840(grams) A1 **Alternative method for the first 3 marks:** (potatoes for 1 person or 5 ounces= 5 × 28) = 140(grams) B1 (potatoes for 6 people or 30 ounces=) 140× 6 M1 **FT 'their 5 × 28' × 6 for M1 and possible A1 if 'their 5 × 28' × 6 correctly evaluated.** 840(grams) A1
6. 3 6 7 9 10 10 11(cars) 3 + 6 + 7 + 9 + 10 + 10 + 11 and ÷ 7 8 (cars)	B2 M1 A1	Need not be in this order B1 for sight of (11 -8 =) 3 (cars) **and** at least two 10s FT intention to sum 'their 7 numbers' and divide by 7, **must be** 7 numbers CAO, i.e. FT is only for the method mark If no marks, award SC1 for an unsupported answer of '8'

7(a) 15:30	B1	
7(b) 16 km	B1	
7(c) Indicates or implies 'can't tell', with a reason suggesting, e.g. 'don't know in which direction they travel', 'could be (up to) 14 km apart', 'the graph only says distance from home'	E1	Ignore spurious additional information. Allow 'can't tell' with e.g. 'one sister takes a different route', 'different roads taken', 'one sister changed direction', 'could be 9km apart', 'Eleri may have taken a longer route' Do not accept 'can't tell' with e.g. 'they don't leave from the same place', 'Yvon travels slower than Eleri', 'schools finish at different times', 'the graph shows distance from home not distance from school', 'not known if Yvon travels in a straight line'

8. (Tent ground area) 2.5 × 4.4 = 11 (m^2)	M1 A1	Allow for sight of 2(.)5(0) × 4(.)4(0) Working of the ground area must be seen, i.e. sight of 2.5 × 4.4 **not** 2 × 4 or 3 × 4 CAO, not FT If no **area** calculation seen award M0, A0 then FT for M and A marks, final mark E0
(Total cost for 12 nights, pay for 10 nights =) 10×14 + 2×10×4	M2	FT 'their ground area >12m^2 to calculation 10×16 + 2×10×4 (=£240) for M2 or equivalent M1 (see formula below) If incorrect interpretation of 'their ground area', award M1 only for either area ≤12m^2 with 10×16 + 2×10×4 (=£240), or area>12m^2 with 10×14 + 2×10×4 (=£220), M1 for a sum of two products: (2 x) a × b + (2 ×) 4 × c where a = 10, 11 or 12 b = 14 or 16 c = 10, 11 or 12 The initial (2 ×) is if the error is 2 tents! For example: • 12×14 + 2×10×4 (= £248) • 10×14 + 10×4 (= £180) • 12×16 + 2×12×4 (= £288) Ignore further working attempting to subtract discounts Working with the cost of 1 night, e.g. 14 + 2 × 4 or 16 + 2 × 4, ignore errors in calculation and award M2 or M1 as appropriate when attempt to multiply by 10, 11 or 12 is seen, i.e work may be seen in stages
(140 + 80 = £) 220	A1	CAO If previous M0, A0 for costs, award SC1 for sight of 1 night cost (£)22 or for sight of 10×14 and 2×10×4 without indication of addition
(Saving = 2×) 8 × 15 (£) 240	M1 A1	Allow M1 only 1 person saving CAO, not FT *<u>Alternative</u>* *(How many weeks of saving)* *220 ÷ (2 × 15) M1* *(FT 'their 220' for M1 only)* *7⅓ or 7.3(.....)(weeks) A1 CAO* *If no marks, allow SC1 for 14.6(6... weeks) or 14.7 from 220 ÷ 15* *Or equivalent for working with cost per person, i.e. ½ × 10 × 14 + 10 × 4 = £110 and saving 8 × 15 = £120, all previous marks are available*
Conclusion, e.g. 'planned saving is enough to pay for the holiday'	E1	FT comparison for 'their £240 saved' with 'their total cost', provided at least 2 M marks previously awarded one of which **must be** for area calculation Allow the conclusion 'yes'

9. a = 72° and c = 94° b = 108° d = 86° Correct diagram within ±2mm and ±2° tolerances	 B1 B1 B1 B3	If contradiction between diagram and answer space, mark the answer space, except if a transition slip FT 180 – 'their a' FT 180 – 'their c' Ignore extensions of lines in construction, mark the quadrilateral Attempt (FT) using template irrespective of angles stated B2 for diagram with either of : • 6cm ±2mm **and** a = 72°± 2°**and** either b = 108° ± 2° or d = 86°± 2° • all correct angles ±2° with 6cm incorrect B1 for 6cm ±2mm **and** a = 72°± 2°or d = 86°± 2°
10(a)(10 + 20 + 30) × 0.6 or 60 × 0.6 or (10 + 20 + 30) × 60 ÷ 100 (£)36	M1 A1	Allow intention of brackets i.e. 10 + 20 + 30 × 0.6 CAO and must be from correct working If no marks, award SC1 for an answer of 3600(p), **not** for £3600
10(b) 10 × 20 × 30 (= 6000) × 0.01 or (× 1) ÷ 100 (£)60	M1 m1 A1	An answer of £6000 implies M1 only Depends on previous M1 Award of m1 implies previous M1 CAO If M1 m0 A0 also award SC1 for an answer of 6000p
10(c) 2× {(10×20) + (20×30) + (10×30) (= 2200) × 0.02 or × 2 ÷ 100 (£)44	M2 m1 A1	M1 for sight of **sum** of at least 2 of the 6 possible products: 10×20, 20×30, 10×30 Depends on M2 or M1 previously awarded CAO If M2 m0 A0, also award SC1 for an answer of 4400(p), **not** for £4400
11(a) (Needs a further) 11 (squares)	B2	B1 for sight of 6+5+4+3+2+1 or 21squares
11(b)(States or implies 'correct' with sight of, e.g. • 10+9+8+7+6+5+4+3+2+1, or • … 21, 28, 36, 45, 55, or • … +7, +8, +9, +10 • 5 × (10 + 1)	B1	CAO Do not accept any contradictions, e.g. an incorrect answer for the correct sum, i.e. 10+9+8+7+6+5+4+3+2+1 with an answer other than 55 Allow 'correct' with D10 diagram drawn in the answer space