GCSE MARKING SCHEME

SUMMER 2018

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

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 - NUMERACY (NEW)

SUMMER 2018 MARK SCHEME

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GCSE Mathematics – Numeracy Unit 2: Foundation Tier Summer 2018	Mark	Comment
1.(a) 8907 (miles)	B1	

(b) 8907 × 3 OR 8900 × 3 OR 8910 ×3
    26721 or 26700 or 26730
    27000(miles)
	M1
	A1
	B1
		FT 'their 8907' or 'their 8907' rounded
		
		FT rounding 'their 26721' if equivalent difficulty.
		Alternative:
		8907 rounds to 9000 B1
		FT 'their 8907'rounded to the nearest thousand.
		9000 × 3 M1
		27000(miles) A1
		If no marks awarded, SC1 for a final answer in the range 26000 to 27000 that is a multiple of 10.

2. (a)(i) 227 (miles)	B1	
(a)(ii) 	Day	Starting from	Going to	Distance (miles)
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1	Fishguard	Laugharne	82
2	Laugharne	Mumbles	61
3	Mumbles	Chepstow	84		B2	B1 for incorrect place names with correct totals 82, 61 and 84 in correct order. Or B1 for incorrect place names with totals that sum to 'their 227'. Or B1 for correct place names with one or more incorrect totals or totals omitted. Or B1 for one or more correct rows. Or B1 for Broad Haven to Kidwelly 78 (miles) or for Kidwelly to Pontypridd 69 (miles)

2. (b) A valid explanation involving appropriate calculation(s) e.g. '425 ÷ 5 = 85 so he would have to ride 85 miles every day but his first three days are all less than 85 so the last two days would be more than 85'. '227 + 85 + 85 = 397 which is not enough to get him to London.' '(425 – 227) ÷ 2 = 99. So, the last two days will need an average of 99 miles per day'. '425 – 227 – 85 = 113 so the 5th day will need 113 miles'. '425 – 227 – 85 – 85 = 28 so there will be 28 miles left after 5 days. 425 ÷ 5 = 85 so each day needs 85 miles on average but three days had less than 85 miles '85 × 5 = 425. If each day was 85 miles he would travel 425 miles but the first three days are less than 85 miles.	E2	FT 'their 227' Award E1 for sight of an appropriate calculation(s) that could lead to a correct explanation e.g. 227 + 85 + 85 or 397, Or (425 – 227) ÷ 2 or 198 ÷ 2 or 99 Or 425 – 227 – 85 or 113 Or 425 – 227 – 85 – 85 or 28 Or 425 ÷ 5 Or 425 ÷ 85 Or 85 × 5 E1 NOT awarded for 85 or 425 alone Or E1 for an appropriate explanation without supporting calculation e.g. 'It will take him 6 days for the whole journey to London.' Or 'It will take him one extra day.' Or 'When he arrives at Chepstow he will have 198 miles to go to London and this is not enough with 85 miles each day Do not accept a response containing only a repeat of the facts of the question FT 'their 227' provided their answer is consistent with the ride NOT being possible and 170<'their 227'<255.
3.(a) (Gas Mark) 4	B1	
3.(b) Fan oven	B1	
3.(c) (90 – 25=) 65 (minutes) ISW	B1	Allow I hour and 5 (minutes). ISW Units need not be stated but if given, must be correct.

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4(a) 6 ± 0.2 (cm) or 60 ± 2 (mm)	B1	Units need not be stated but if given, must be correct.
4.(b) 12 ± 0.4 (m)	B1	FT 'their 6 ± 0.2' × 2 provided answer (a) in cm. Do not FT from an answer in mm unless the scale is correctly applied i.e. 10 mm is 2m If no units stated in (a), FT 'their (a)' provided ≤ 8.
4.(c) [(6 ± 0.2) ×3 + (4.2 ± 0.2)] ×2 44.4 ± 1.6 (m)	M2 A1	*Measurements could be seen on the diagram* FT from (a) or (b) for M2 or M1 M1 for (6 ± 0.2) ×3 + (4.2 ± 0.2) (cm) provided consistent units used. Or M1 for sight of (6 ± 0.2) ×3 ×2 (cm) Or M1 for sight of (4.2 ± 0.2) ×2 (cm) Or M1 for (6 ± 0.2) ×4 ×2 (cm) (6 ± 0.2) ×3 could be the sum of different measurements each within tolerance. FT for A1 only if M1 involves the total of **four** lengths. If no marks, award SC1 for an **unsupported answer** of 22.2 ± 0.8

5. (income from sales) (small 14 × 8.25 = £)115.5(0) (medium 9 × 19.95 = £)179.55 (large 5 × 35 = £)175		B2	Sight of all three correct evaluations. B1 for any two correct evaluations or B1 for 14 × 8.25 + 9 × 19.95 + 5 × 35 (=470.05)
	(£)470.05	B1	May not be seen but implied. FT provided at least one correct calculation seen in a sum of three amounts. Answer of 470 implies B2 B0
(profit) 470.05 – 225		M1	FT 'their (£)470.05'
(£) 245.05		A1	FT for a loss if indication of loss. Mark final answer If B1 awarded but 470 used in profit calculation, award M1 A0 for answer of (£)245
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
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.

6. (a) (i) (£) 139.5(0)	B1	
(a) (ii) 23 × 10.60 – 21.39 (£)222.41	M1 A1	Treat 19 × 10.60 – 21.39 = (£)180.01 as a misread
(a) (iii) (£222.41− £139.50=) (£)82.91	B1	FT 'their £222.41' and 'their £139.50'.
(b) (Total hours worked) 5 + 5 +4½ +5½ 20 (hours) AND *Qualified* box ticked.	M1 A1	 Accept a convincing reasoned argument for 20 (hours) and *Trainee.* e.g. lunch breaks each day means they actually work for less than 19 hours. If no marks, award SC1 for **one identifiable slip** in hours worked leading to a consistent conclusion.
(c) 8/100 × 1760 (£) 140.8(0)	M1 A1	Or equivalent method Ignore subsequent working such as (£)1760 – (£)140.8(0) = (£)1619.2(0) Or (£)1760 + (£)140.8(0) = (£)1900.8(0) M1 A0 for unsupported or correctly supported answer of (£)1619.2(0) or (£)1900.8(0)
7(a) 180	B1	
7(b) Angle measured 135° ± 2° **2/5** × 135° = 54(°)	B1 M1 A1	 FT for angles other than135° ± 2° provided < 360° Accept angles in the range 53(°) to 55(°)
7(c) 720 - 0.45×720 or 0.55 × 720 396 (males)	M1 A1	For complete method If no marks, award SC1 for sight of 324 (females)
8 (a) (Fresh water charge £) 25.25 × 1.08 (= 27.27) (Waste water charge £) 22.31 × 1.70 (=37.927) (Total bill £27.27 + £37.927 = £) 65.19(7) or 65.2(0) **Undercharged** (by) (£)6.4(0) or (£)6.39(7)	M1 M1 A1 B1	 CAO Must state under charged and the amount, however accept –(£)6.4(0) or –(£)6.39(7) FT difference between 'their derived total' and £58.80 with appropriate conclusion, over or under charged

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9 (Cost of 1 apple 78 ÷ 3 =) 26(p)	B1	Accept 0.26p only if used correctly in further working
(Cost of 1 pear =) (1(.)22 – 26) ÷ 3	M1	Allow intention to divide by 3 FT 'their 26' provided evidence of 78 ÷ 3 Algebraic notation is not required Allow inconsistent place value for M1 only, unless corrected later, i.e. 3 pears + 26 = 1.22 or 3 pears = 1.22 – 26
(=) 32(p)	A1	
(Cost of 5 pears + 2 apples =) 5 × (0.)32 + 2 × (0.)26 or 1(.)60 + (0.)52	M1	FT 5 × 'their (0.)32' + 2 × 'their (0.)26' Allow inconsistent place value for M1 only, unless corrected later
(=) (£)2.12 or 212(p)	A1	If units are given they must be correct
(Change £5 – 2.12 =) (£)2.88	B1	FT provided at least 3 previous marks are awarded Do not penalise incorrect units if already penalised, otherwise penalise incorrect units -1
10(a) 48 cm	B1	
10(b) 1:15 p.m. and 1:30 p.m.	B1	
10(c) Suitable explanation, e.g. 'water level drops', 'depth of the water falls', 'depth is decreasing (during low tide)', 'depth of water is decreasing', 'water level decreased at night', 'tide goes down'	E1	Ignore any additional comments or values Must refer to 'water' or 'depth' Allow, e.g. 'when the water starts to run shallower' Do not accept, e.g. 'negative gradient', 'goes down', 'decrease going into the evening', 'depth of river is lower at this time', 'when the water starts to run shallow', 'river is dropping', 'it drops', 'it is decreasing', **'it** goes down'
10(d) 1 hour	B1	

11(a) 24.25 suitcase symbols 9700 ÷ 24.25	B1 M1	FT 'their 24.25' provided ≥ 23 Allow M1 for sight of any one of • *422 x 23 = 9706* • *404 x 24 = 9696* • *388 x 25 = 9700* 24.25 ÷ 9700 is M0, unless 400 seen
(Represents) 400 (people)	A1	FT provided 'their 400' is rounded to a whole number of people Do not allow an embedded answer with a multiplication *Unsupported 400 (people) is awarded all 3 marks* *(Note:* *9700 ÷ 23 gives 421 or 422 people* *9700 ÷ 23.25 gives 417 or 418 people* *9700 ÷ 23.75 gives 408 or 409 people* *9700 ÷ 24 gives 404 or 405 people* *9700 ÷ 25 gives 388 people* *9700 ÷ 26 gives 373 or 374 people* *9700 ÷ 27 gives 359 or 360 people* *9700 ÷ 28 gives 346 or 347 people* *9700 ÷ 29 gives 334 or 335 people* *9700 ÷ 30 gives 323 or 324 people)*
11(b) 590 x 0.6(0) ÷ 1.18 or equivalent	M3	Ignore any additional incorrect calculations for M2 or M1 M2 for 590 x 0.6(0) (= 354) or equivalent, or M1 for 590 ÷ 1.18 (= 500) OR M1 for 590 – 'their 40% of 590' AND M1 for 'their 60%' ÷ 1.18
(£) 300	A1	CAO. Accept an embedded answer, 300 ×1.18 = 354 An answer of (£)200, from 590 x 0.4(0) ÷ 1.18 is awarded M1 (for 590 ÷ 1.18) and then SC1

12. Costs are (Helmet with discount £) 80 – 0.15 × 80 or 0.85 × 80 or equivalent	M1	(= £68) May be considered in stages
(Fuel, 1 month =£) 1.26 × 350 ÷ 20 or 0.06(3) × 350	M1	(=£22.05 or £21)
(Total of all costs 400 + 151.2(0) + 37 + 68 + 22.05 or 588.20 + 68 + 22.05)	M1	FT 'their £68' and 'their £22.05' (including use of £21)
(£)678.25	A1	CAO. OR from alternative method looking at months to save for each item sight of either 11 months and a further (£)18.25 to pay or 12 months and (£)41.75 left over (this method implies possible final m1 and/or A1)
(Need to save for) 678.25 ÷ 60 (months)	m1	Award of m1 may be implied by A1 rounded up number of complete months FT 'their £678.25' provided at least M1 previously awarded (£677.20 ÷ 60 leads to 11.2866....) Allow sight of repeated addition of £60, at least showing 11 lots of £60 (= £660) An answer of 11(.3… months) implies m1
12 (complete months)	A1	FT for 'their total cost' ÷ 60 with the answer rounded up to whole number of months provided at least M1 previously awarded