GCSE MARKING SCHEME

SUMMER 2019

GCSE
MATHEMATICS – NUMERACY
UNIT 1 - FOUNDATION TIER
3310U10-1

INTRODUCTION

This marking scheme was used by WJEC for the 2019 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 2019 MARK SCHEME

GCSE Mathematics-Numeracy Unit 1: Foundation Tier	Mark	Comments
1(a) Rectangle 4cm by 3cm drawn	B1	
Rectangle drawn at least 3cm from the house AND at least 1 cm from the hedge	B1	FT 'their rectangle'
Rectangle drawn exactly 2 cm from the flower bed	B1	FT 'their rectangle'
1(b) 12 (m^2)	B1	FT 'their rectangle'. It must be a rectangle or square. This may be seen or implied in a calculation for costs.
15 × 12	M1	FT 'their 12' or their derived area.
(£)180	A1	FT 'their 12' × 15 correctly evaluated provided 'their 12' is 6 or more.
1(c) cuboid	B1	
2(a) Level -3	B1	
2(b) (Level) -2	B1	Allow 2-
2(c) -1 + 10 – 5 or -1 + 5	M1	May be seen in a diagram. Method may be seen in stages.
4	A1	If no marks award SC1 for appropriate sight of 9 (from -1 + 10)
3(a) 40/100 × £3 × 90 or equivalent e.g. (£)3 × 90 ÷ 10 × 4	M2	M1 for: 40/100 × (£)3 (=1.2(0)) OR 40/100 × 90 (=36) OR (£)3 × 90 (=270) These may be implied in workings with other incorrect workings, e.g. 90 ÷ 3(= 30)then 40/100 × (90 ÷ 3) (= 12)
(£)108	A1	ISW E.g. Ignore further working. e.g. 108 + 270 = 378 or 270 – 108 = 162
3(b) 90 ÷ 5 × 8 or equivalent e.g. 90 × 1.6 18 × 8 Or use of 10 miles is 16km **and** 9 × 16	M1	Method may be seen in stages. Calculation that could lead to the correct answer if evaluated correctly.
144 (km)	A1	

4(a) (lemonade bought =) 200 × 300 60000 (ml) (number of bottles needed=) 60	M1 A1 B1	Ignore units at this stage FT 'their 60000' ÷ 1000 correctly evaluated. This may be implied in the cost of the bottles.
(cost of bottles 60 × 90p=) 5400(p) or (£)54	B1	Ignore units at this stage FT 'their 60' × 90 correctly evaluated.
(cost of 3 packets of cups=) (£)12 or 1200(p) (Total cost=) (£)66 or 6600 (p)	B1 B1	If units are given they must be correct. FT 'their (£)12' + 'their cost of their number of bottles' correctly evaluated provided consistent units are used.
Alternative method *(Number of cups per bottle 1000 ÷ 200 =) 5* *(number of bottles needed=) 300 ÷ 5* * 60*	*B1* *M1* *A1*	*This may be embedded e.g. 100 ÷ 5 = 200* *FT 300 ÷ 'their 1000 ÷ 200'* *FT provided correctly evaluated.* *This may be implied in the cost of the bottles.*
(cost of bottles 60 × 90p=) * 5400(p) or (£)54*	*B1*	*Ignore units at this stage* *FT 'their 60' × 90 correctly evaluated.*
(cost of 3 packets of cups=) (£)12 or 1200(p) *(Total cost=) (£)66 or 6600 (p)*	*B1* *B1*	*If units are given they must be correct.* *FT 'their (£)12' + 'their cost of their number of bottles' correctly evaluated provided consistent units are used.*
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.
		If incorrect units not penalised in (a), penalise -1 once only for inconsistent or incorrect units in (b)
4(b) 300 × 50 or 300 × (£)0.5(0)	M1	
15000 (p) or (£)150	A1	Ignore units given at this stage
(profit=150 - 66) (£)84 or 8400(p)	B1	Mark final answer FT 'their 150' - 'their 66' from (a) correctly evaluated provided consistent units are used. If 'their 66' is > 'their 150' allow negative answers from their workings or a statement following their workings that says this is a loss (not a profit).

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5. (Snowdon) 6×1000/1000 or 6×900/1000 or 6×950/1000 or 6×940/1000 or 6×945/1000	M1 3	Working must be seen
6(˚C) or 5.4(˚C) or 5.7(˚C) or 5.64(˚C) or 5.67 (˚C)	A1	ISW Allow answers to calculations to be written as rounded or truncated values. Errors seen in calculations before rounding or truncating award A0 If M0 A0, award SC1 for unsupported answers in the range 5 to 6 inclusive.
(Kilimanjaro) 6×4000/1000 or 6×5000/1000 or 6×4100/1000 or 6×4080/1000 or 6×4090/1000 or 6×4085/1000	M1	Working must be seen
24(˚C) or 30(˚C) or 24.6(˚C) or 24.48(˚C) or 24.54(˚C) or 24.51(˚C)	A1	ISW Allow answers to calculations to be written as rounded or truncated values. Errors seen in calculations before rounding or truncating award A0 If M0 A0, award SC1 for unsupported answers in the range 24 to 25 inclusive.
6. (¼ kg strawberries costs) (£) 2.15	B1	Penalise -1 only on their first possible A1 for incorrect units. Ignore units not given
(Mr Thomas pays) 20 – 2.55 OR (Cost of strawberries from £20) 20 – 8.60 ÷ 4	M1	(=£17.45) (= 20 – 2.15 = £17.85)
(Cost of 1½ kg raspberries) 20 – 2.55 – 8.60 ÷ 4 (= £) 15.3(0)	m1 A1	(=£17.45 - £2.15 or £17.85 – 2.55) Sight of (£)15.3(0) implies all previous marks FT 'their 8.60 ÷ 4'

(Cost of 1 kg raspberries)
      15.3(0) ÷ 3   × 2   or   15.3(0) ÷ 1.5
 	
                                 (= £) 10.2(0)
	M1
	
	A1
		FT 'their 15.3(0)'

7(a)(i)	$\dfrac{3}{8}$	B1	
7(a)(ii)	1 : 1	B1	
7(b) Selects or unambiguously implies 'Shorter than Dieter's sunflower' **AND** • states or uses a suitable conversion, e.g. '90 cm is 36 inches' (as given), or '1 inch is 2.5(4) cm', or equivalent OR • shows a calculation based on an appropriate conversion, e.g. sight of 90/36, or 10÷4, or similar		E1	Equivalents include: • 12 inches as 30 cm • 6 inches as 15 cm • 9 cm as 3.6 inches • 10 cm as 4 inches
Stating or giving any of the following • 80 cm as 30 inches to 32 inches inclusive • 24 inches as 60 cm to 62 cm inclusive		B1	B1 implies previous E1 provided 'Shorter than Dieter's sunflower' selected
8(a)(i) (Aled's mum paid) (£) 220 OR (Aled and Gareth pay a total of 660 – 220) (£)440		B1	
(660 – 220) ÷ (1 + 9) or 9 × (660 – 220) ÷ (1 + 9) or 44 or 9 × 44		M1	FT 660 – 'their derived 220'
(Aled paid) (£) 44 (Gareth paid) (£) 396		A1 A1	FT 9 × 'their 44' FT 440 – 'their 44' provided M1 awarded (this allows If answers 44 and 396 are reversed, M1, A0, A1 to be awarded) If M0, A0, A0 award SC1 for any of the following • answers that add to 'their 440' • answers (£)66 and (£)594 • answers (£)22 and (£)198
8(a)(ii) Explanation, e.g. 220 + 44 + 396 (= 660), 'add them all up', 'check to see if the total is (£)660', 'divide Gareth's amount by 9'		E1	Depends on at least 1 mark awarded in 8(a)(i) Mark as appropriate to candidate's method in 8(a)(i), e.g. accept alternative method using £44 or £396 (if originally found from subtraction, sight of appropriate multiplication or division, or vice versa) If values are used, FT provided the 3 values total (£)660 If a total is given in a response it must be correct, (£)660 Allow, e.g. 'multiply Aled's mother's amount by 3',

8(b) Sight any of any one of the following: • (21.13kg – 20kg =) 1130 (g) • 21130 (g) • consistent conversion of units g to kg, keeping 21.13kg and 20kg unchanged	B1	Allow 1.13 (kg) provided it is interpreted correctly Accept evidence in working, do not award if working is not seen If units are given they must be correct
Coat AND Jumper (820 + 320)	B2	Do not award B2 unless either previous B1 awarded or appropriate correct working shown Do not award B2 if incorrect working or no working seen B1 for any of the following: • 1130 – 820 = 310 • Coat with sight of 310(g) left • Unambiguous choice of 820(g) AND 320(g) to remove • 'coat and jumper' without working shown, not to be awarded if incorrect working seen Note: B1, B2 for unambiguous choice of Coat AND Jumper with for sight of 21130 – 820 – 320 = 19 990 or 820 + 320 = 1140 OR B1, B1 for sight of 21130 – 820 – 320 = 19 990

8(c)(i) Appropriate calculation, e.g.
  9 × 11.4(0),
  34.2(0) + 68.4(0),
  3 × 34.2(0),
  45.6(0) + 57(.00),
  (45.6 + 5.7) × 2
	M1	Calculation that could lead to the correct answer if evaluated correctly

102.6(0) (euros)	A1	

8(c)(ii) Appropriate calculation, e.g.
  11.4(0) ÷ 2 + 22.8(0),
  57(.00) ÷ 2,
  (34.20 + 22.80) ÷ 2
	M1	Calculation that could lead to the correct answer if evaluated correctly

28.5(0) (euros)	A1	
8(d)(i) Correctly completed frequency diagram	B1	Bars of correct height (16 and 33) for the missing intervals
8(d)(ii) $1.12 \leq b < 1.16$	B1	

9(a) 24 (miles per gallon)	B1	
9(b) 2.2 (litres)	B1	

9(c)(i) Sight of
    55, 57, 53, 17, 48
 	
(55+57+53+17+48) ÷ 5
 	
      (230 ÷ 5 =) 46 (miles per gallon)
	B1
	
	M1
	
	A1
		FT 'method to sum 5 numbers' provided at least 3 are correct
		FT provided at least 4 correct values are used
		FT responses must be evaluated not left as improper fractions, however allow rounded or truncated final answers

9(c)(ii) Explanation of why it is not a suitable average, e.g. 'included the rogue value', 'gives a lower value', '17 appears to be an anomaly', 'one car goes far less than the others', 'because there is one really low value', 'mean is unduly affected by use of 17'	E1	Allow, e.g. 'only considered 5 cars', 'not enough cars', 'because there are fewer cars', 'insufficient data', 'not considered all the cars with engines less than 1.5 litres', 'not considered all 6 (or 7) cars'
9(d) Straight line of best fit, following the trend with some points above and some below the line	B1	Allow slight adjustment down, considering the rogue value, the trend must be correct The line of best fit, shown or if extended, must not be connected to any corners of the graph paper Allow intention of a straight line
9(e) Unambiguous decision with a reason, e.g. 'Yes, as more cars with engines less than 2.5 litres', 'Yes, many cars with engine size less than 2.5 litres' 'Yes, 15 or 16 cars shown <2.5 litres', 'Yes, as only 10 cars (out of 26) with ≥2.5 litre engine', 'Yes, more data', "Yes, more readings' 'Yes, stronger correlation', 'Yes, (more) points are closer to the line of best fit', 'Yes, more cars', 'Don't know (or No), as there is one rogue value for a car with engine size <2.5 litres', 'No, data not a large set',	E1	Allow, e.g. 'Yes, they are closer together', 'Yes, plots before 2.5 are close together' Yes, results are quite similar' 'Yes, they have a similar range in fuel economy', 'Yes, as only 10 cars (out of 26) with >2.5 litre engine' Do not accept, e.g. 'Yes, because before there is a lot of fuel economy', Do not accept contradiction between the choice of yes, no and don't know and their reason
10(a) 045(°) ± 2°	B1	Ignore any additional direction included, such as N(orth) E(ast) (or an incorrect direction) B0 for 45° ± 2° and/or N(orth) E(ast)
10(b) 202(°) ± 2°	B1	