GCSE MARKING SCHEME

AUTUMN 2021

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

INTRODUCTION

This marking scheme was used by WJEC for the 2021 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

AUTUMN 2021 MARK SCHEME

Unit 1: Foundation Tier	Mark	Comments
1(a) Equilateral	B1	
1(b) No and a valid reason e.g. 'No because the angle is 78(±2˚) (which is less than 90(˚))' 'No as the angle is smaller than a right angle' 'No because an obtuse angle is greater than 90 (but less than 180)' 'No because it's less than 90' 'No, it's below 90' 'No, obtuse is over 90' 'No because it is an acute angle'	E1	Reasons may be indicated on the diagram. Do not accept 'No because they are not straight lines' 'Yes because it is an angle below 90' 'Yes because obtuse angles are 90' 'No, it is over 90'
1(c) Evidence of counting squares inside shape Answer in range 14 – 22 Maisie correct (accept yes)	M1 A1 E1	 Answers may be on diagram This mark is **dependent** on 'their area' FT 'their area' Award E1 if there is clearly enough working for area to be able to decide whether Maisie is correct or not. Award E0 for explanations clearly based on perimeters. Must clearly indicate that Maisie is correct but may be implied in their statement eg there are more than 13 cm^2, there are approximately 18.
2(a)(i) 11	B1	Answer may be seen in table or on the answer line. Answer in the table takes precedence.
2(a)(ii) Wales	B1	
2(b) Labels for countries Correct pictogram drawn England South Africa Canada New Zealand Wales	B1 B3	 Award B2 for 3 or 4 drawn correctly Award B1 for 2 drawn correctly Award B0 for incorrect key used (i.e. one small square represents 4) Penalise -1 only for consistent use of a different symbol. eg ⊕
2(c) 57.1(0) (seconds)	B2	Award B1 for sight of 0.03 (but not 3/100) or 57.16

<table>
<tr><td>2(d)(i) (2:)07.39 – (2:)05.45

1.94 (seconds)</td><td>M1

A1</td><td>Or alternative method e.g. counting on. Must be a full method that leads to correct answer.
Award M1 for sight of the digits 194
Award M1 for subtraction of (2:)07.39 and (2:)05.45 implied, including (2:)05.45 - (2:)07.39

Note: answer of 2.06 or 2 mins and 6 seconds implies subtraction so award M1

ISW. Allow 0:01.94 or 0.01.94

If no marks award SC1 for misreading the decimals eg an answer 1(:) 54 or 1.54 or 1 (minute) 54 (seconds) or 2(:) 34 (from 154 ÷ 60)</td></tr>
<tr><td>2(d)(ii) 0.68 (seconds)</td><td>B1</td><td></td></tr>
<tr><td>3(a)
<table><tr><th>Item</th><th>Quantity</th><th>X or ✓</th></tr><tr><td>Orange squash</td><td>1 litre</td><td>✓</td></tr><tr><td>A bag of apples</td><td>1 kilogram</td><td>✓</td></tr><tr><td>A bag of sugar</td><td>70 kilograms</td><td>X</td></tr><tr><td>A large bag of crisps</td><td>150 grams</td><td>✓</td></tr><tr><td>Milk</td><td>20 millilitres</td><td>X</td></tr><tr><td>A bag of rice</td><td>500 grams</td><td>(✓)</td></tr><tr><td>A bottle of shampoo</td><td>9 litres</td><td>X</td></tr><tr><td>A large bar of chocolate</td><td>200 kilograms</td><td>X</td></tr></table></td><td>B3</td><td>Award B3 for all 7 correct

Award B2 for 5 or 6 correct
Award B1 for 3 or 4 correct</td></tr>
</table>

3(b) (25% off = 84 ÷ 4 =) (£)21 (Goods cost = 84 - 21) (£)63 (Delivery charge=) (£)4 (Total Cost= 63 + 4 =)(£)67	B1 B1 B1 B1	 FT their derived 25% FT 'their 63' **but not 'their discount'** FT 'their 63' (including their discount) + 'their delivery charge' Note: if delivery charge is given as (£)2 (from delivery for £84) award final B1 mark if evaluated correctly. Note: if delivery charge table has been extended following the pattern and then this value is added on correctly, award final B1. **For incorrectly adding the delivery charge at the start:** Award: First B mark as B0, then B1 for (84 + 2=) (£)86 B1 for (86 ÷ 4 =) (£) 21.5(0) B1 (for total cost = 86 – 21.50 =) (£)64.50 FT correct evaluation of 86 - their 21.50
Organisation and communication Writing	OC1 W1	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.
3(c) Better buy is 3kg of potatoes for £1.50 with a suitable calculation or reason e.g. '3kg is (approx.) 6.6 lbs so are getting a greater weight of potatoes (for the same money)' '3kg because it's 6.6lbs' From 3kg bag, 1 kg is 50p so 2.2 pounds is 50p From the 5 pound bag, 1 pound is 30p so 2.2 pounds is 66p	E2	Allow '3kg is (about) 6 lbs so are getting a greater weight of potatoes (for the same money)' For E2 there must be a clear choice of the shop selling 3kg of potatoes and an appropriate calculation. Award E1 for sight of: • 1kg is 2.2 pounds • 6.6lbs • 3kg is 6.6lbs • 66 pence • '3kg is **heavier** than 5lbs' • '5lbs is less than 3kg' • '3kg gives more potatoes for the same money' • '3kg is better as it weighs more than 5lb of potatoes' • '3kg because it is more than 5lb' Award E0 if statement of 3kg is better buy without further reasoning.

4. Sight of 6 OR sight of 4 6 × (£)5(.00) OR 4 × (£)8.4(0) (£)30(.00) AND (£)33.6(0) (Save) (£)3.6(0)	B1 M1 A2 B1	May be implied in further working eg 2 is 5, 4 is 10, 6 is 15, 8 is 20, 10 is 25, 12 is 30 Award A1 for either (£)30(.00) OR (£)33.6(0) A1 or A2 implies all previous marks. FT 'their derived 33.60' – 'their derived 30' provided 'their 33.60' > 'their 30' but **not** 8.40 – 5 = 3.40
Alternative method 1: *(Carol's Cakes) (£)5(.00) ÷ 2* *OR (Icing Top Cakes) (£)8.4(0) ÷ 3* *(£)2.5(0) AND (£)2.8(0) (per cake)* *(Saving per cupcake=) 30(p) or (£)0.3(0)* *(Save 30(p) × 12 =) (£)3.6(0)*	*M1* *A2* *A1* *B1*	*Award A1 for either (£)2.5(0) OR (£)2.8(0)* *FT 'their derived (£)2.8(0)' – 'their derived (£)2.5(0)'* *FT 'their 30 pence' × 12*
Alternative method 2: *(Carol's Cakes) (£)5(.00) ÷ 2* *OR (Icing Top Cakes) (£)8.4(0) ÷ 3* *(£)2.5(0) AND (£)2.8(0) (per cake)* *12 × (£)2.8(0) – 12 × (£)2.5(0)* *(Save (£)33.6(0) - (£)30(.00) =) (£)3.6(0)*	*M1* *A2* *M1* *A1*	*Award A1 for either (£)2.5(0) OR (£)2.8(0)* *FT 12 × 'their derived (£)2.8(0)' – 12 × 'their derived (£)2.5(0)'*
5(a) 16 km	B1	
5(b) 5:30 p.m.	B1	
5(c) very likely	B1	Mark selection (rather than answer space), but check answer space if no selection made

6(a) 54 (mm) or 55 (mm)	B2	B1 for sight of 154 (mm) or 155 (mm)
6(b) Indicates or unambiguously implies '**The same on both days'** with a reason, e.g. 'both the same at 9 a.m.', 'both at the same time', 'both full at 9 a.m.', 'both took 1 hour' 'both at 360mm at the same time', 'they start and finish at the same time', 'both meet the depth of water at the same time'	E1	Allow reference to 'both tanks' rather than 'both days' If a correct statement is made, ignore additional incorrect or spurious statements Allow 'same on both days' with a reason, e.g. 'both tanks have 360(mm)', 'the two lines meet at the same point', 'both tanks are filled (full) at the same time', 'the 2 lines finish at the same time', 'both get there at the same time' 'both peak (get to the top of the graph) at the same time' Do not accept, e.g. 'the 2 lines show the same information', 'the 2 lines are the same', 'he put water in the tank for both days' 'both tanks are filling at the same time'
6(c) 8(:)36 a.m. or 08(:)36	B1	Allow (0)8(:)36 (a.m.) Do not accept (0)8(:)36 p.m. Allow time reference to 'just before 08(:)36' or equivalent, but NOT 08(:)35
6(d) Indicates or unambiguously implies **Saturday** with a reason, e.g. 'steeper (rise)', 'gradient is more', 'over 100mm on Saturday but only about 15 mm on Friday'	E1	Allow additional spurious statements or incorrect values if clearly stating 'steeper' or similar Allow Saturday with, e.g. 'steep gradient', 'steep rise', '(approximately) 120 (mm) on Saturday', '(only) 14 (mm) on Friday', 'Saturday with steep drop', 'Saturday's water had increased more than Friday' 'the depth of water is greater in the 10 minutes', 'the line moves up faster on Saturday', 'it increases from 130 to 250(mm) on Saturday', 'it increases from 130 to 255(mm) on Saturday', 'it's a straight line going up so it is quicker', 'filled up quicker, line goes straight up unlike Friday' Allow values for: • Saturday a value in the range 120 to 125 (mm) or 'over 100 (mm)', 'greater than 110 (mm)', or similar • Friday a value in the range 13 to 17 (mm) or (give approximately as) 20 (mm) or 'greater than 10 (mm)' or similar Do not accept, Saturday with, e.g. 'Saturday has 250mm and Friday has 215mm', 'more water has been used on Saturday', 'the curve is more on Saturday', 'because it had more water in it', 'Saturday is faster than Friday', 'Saturday's time has increased more than on Friday'
6(e) 8:35 a.m.	B1	

7(a) (Total cost of 6 guitar lessons is) $5 \times 23 - 5 \times 0.15 \times 23 + 23$ (= 115 – 17.25 + 23) or $6 \times 23 - 5 \times 0.15 \times 23$ (= 138 – 17.25) or $5 \times 0.85 \times 23 + 23$ (= 97.75 + 23) (Cost of 6 guitar lessons is) (£)120.75	M3 A1	Accept methods that show equivalents, e.g. 10% + ½ of 10% (= 11.5(0) + 5.75 = 17.25). M2 for any one of the following costs of 5 guitar lessons • 5× 23 – 5×0.15×23 (= £97.75) • 5×0.85×23 (= £97.75) Allow M2 for 6 × 0.85 × 23 (= £117.30) M1 for any one of the following • 0.15 × 23 (= £3.45) • 5 × 0.15 × 23 (= £17.25) Allow M1 for 6 × 0.15 × 23 (= £20.70) CAO If no marks, award SC1 for understanding the **full** process required ($5 \times 23 - 15\%$ of $5 \times 23 + 23$), but are unable to apply a correct method to calculate either 15% or 85% of 23 or a multiple of 23, provided there is an attempt at deriving an amount for 15% or 85%. (Note: $5 \times 23 - 15 + 23$ is SC0)
7(b) $\frac{18}{300}$ (× 100) 6(%)	M1 A1	Accept, e.g. • 1% is 3 with 18÷3 • 1% is 3 with sight of 6 lots of repeated addition • 6/100 • sight of 5% is 15 and 1% is 3 with implied 3 + 15 = 18 Allow M1 for 18/300 irrespective of further incorrect working, i.e. sight of attempt to evaluate 300 ÷ 18. Do not allow choice of 18/300 or 300/18 A0 if an incorrect unit is given
8. (FruitCo cost of 24 bananas) (£)2 or 200(p) (Mass of 24 bananas) 2400 (g) or 2.4 (kg) OR Appropriate use of 1 kg = 1000 g (Quick Fruit cost of 24 bananas) $4 \times 2400 \div 50$ OR $4 \times 24 \times 100 \div 50$ OR 8(p) × 24 OR equivalent 192(p) or (£)1.92 (Bach Market cost of 24 bananas) 85×2.4 OR $85 \times 24 \times 100 \div 1000$ OR 24×8.5 OR equivalent 204(p) or (£)2.04 Conclusion 'Quick Fruit'	 B1 B1 M1 A1 M1 A1 B1	<u>If an evaluation is given with incorrect units, award B0 or A0 on the first occasion then FT</u> CAO May be implied in further working Appropriate use of 1 kg = 1000 g can be checked by correct place value for Bach Market (e.g. 8.5p per banana) <u>FT 'their 2400g' or 'their 2.4kg' for M and A marks provided mass of bananas not used as number of bananas, i.e. by the inappropriate use of 24</u> Accept full partition methods Award of this mark does not automatically imply the award of the second B mark Do not FT for 85 × 24 alone, this is M0 Accept full partition methods Award of this mark implies the second B1 mark also FT provided at least 2 marks previously awarded and all 3 costs have been considered

9(a)(i) 068(°) ± 2 (°)	B1	
9(a)(ii) 117(°) ± 2 (°)	B1	
9(b) Distance in the range 8 (miles) to 12 (miles) Average speed = $\frac{8 \text{ to } 12}{0.5}$ or $\frac{8 \text{ to } 12}{½}$ or 2 ×(8 to 12) Average speed in the range 16 (mph) to 24 (mph)	B1 M2 A1	For M2 or M1, FT 'their distance' provided it is in the range 7 to 13 miles M1 for $\frac{8 \text{ to } 12}{30}$ Correct for 'their distance' Do not accept an unsupported answer in this range FT from M2 only If no marks, award SC1 for any of the following: • 'their distance' ÷ 0.5 correctly evaluated, including • 2 miles read from the question, divided by 0.5 to give an answer of 4 (mph) (Note: SC0 if 2 ÷ 30 or unsupported 4 (mph))