



GCSE MARKING SCHEME

AUTUMN 2020

**GCSE
MATHEMATICS - NUMERACY
UNIT 2 – FOUNDATION TIER
3310U20-1**

INTRODUCTION

This marking scheme was used by WJEC for the 2020 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.

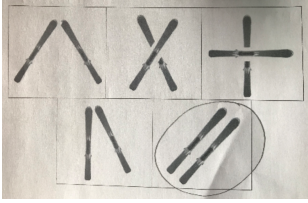
WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

WJEC GCSE MATHEMATICS – NUMERACY

AUTUMN 2020 MARK SCHEME

GCSE Mathematics Numeracy Unit 2: Foundation Tier	Mark	Comments										
1.(a) 197 (years)	B1											
1.(b) (<i>Abergwyn</i> =) $6 \times 5 + 4 \times 2 + 2 \times 3$ 44 (points) <i>(Llanbro</i> =) $7 \times 5 + 3 \times 2 + (1 \times) 3 + (1 \times) 3$ 47 (points) <i>(Ysgol) Llanbro (won the game by) 3 (points)</i>	M1 A1 M1 A1 B1	M1 for sight of the values 30, 8 and 6, together with the intention to add CAO M1 for sight of at least three of the values 35, 6, 3 and 3, together with the intention to add CAO FT correct conclusion using their scores. FT 'their 47' – 'their 44' If no marks awarded, award SC1 for sight of 30,8, 6 and 35, 6, 3, 3										
2.(a)(i) 7 (months)	B1											
2.(a)(ii) Bar at February drawn at -2°C Bar for July drawn at 15°C	B1 B1	If no marks award SC1 for indication of correct heights for both bars										
2.(a)(iii) (Total of temperatures =) $66 (^{\circ}\text{C})$ $(\text{Mean} = 66) \div 12$ $5.5 (^{\circ}\text{C})$	M1 m1 A1	Attempt to add at least 10 temperatures. Allow M1 for total between 50 and 88 as evidence of attempting to add the temperatures FT 'their 66' $\div 12$ CAO										
2.(b)(i) £43.15	B1											
2.(b)(ii) <table border="1" style="margin-left: 20px;"> <tr> <td align="center" colspan="2">Return flight from Grenoble to Cardiff</td> </tr> <tr> <td>Date</td> <td align="center">Saturday 4 January</td> </tr> <tr> <td>Departing time</td> <td align="center">10:50</td> </tr> <tr> <td>Arrival time</td> <td align="center">11:25</td> </tr> <tr> <td>Cost</td> <td align="center">£59.51</td> </tr> </table>	Return flight from Grenoble to Cardiff		Date	Saturday 4 January	Departing time	10:50	Arrival time	11:25	Cost	£59.51	B2	B2 for all 3 correct entries B1 for sight of 10:50 OR 11:25 OR £59.51
Return flight from Grenoble to Cardiff												
Date	Saturday 4 January											
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<p>2.(c) (<u>Cost for 26kg bags =</u>) $4 \times 29.61 (= (£)118.44)$ OR $4 \times 29.61 \times 2 (= (£)236.88)$</p> <p>(<u>Cost for skis =</u>) $((£)37 \times 2 =) (£)74$</p> <p>(<u>Cost for snowboards =</u>) $3 \times (£)39 (= (£)117)$ OR $3 \times (£)39 \times 2 (= (£)234)$</p> <p>(<u>Cost of 4 flights =</u>) $4 \times (£)122.73 (= (£)490.92)$</p> <p>(<u>Total for both journeys =</u>) $(£)236.88 + (£)74 + (£)234 + (£)490.92$ OR $2 \times [(£)118.44 + (£)37 + (£)117] + (£)490.92$</p> <p style="text-align: right;">(£) 1035.8(0)</p>	<p>M1</p> <p>B1</p> <p>M1</p> <p>M1</p> <p>M1</p> <p>A1</p>	<p>May be implied in later working</p> <p>Award M1B0M1 for unsupported (£)272.44 (B1 may be awarded later) Award M1B1M1 for unsupported (£)544.88 ISW</p> <p>For M1 the total must include the flight costs and the 3 additional charges for both flights. Allow only one of the costs to be for a single flight M0 if any additional costs added FT 'their (£)236.88' + 'their (£)74' + 'their (£)234' + 'their (£)490.92' provided at least M1 awarded previously</p> <p>CAO A final answer of (£)763.36 (return flights but only one journey for the additional charges) implies M1B0M1M1M0A0 A final answer of (£)1526.72 (return flights counted twice) implies M1B1M1M1M0A0.</p> <p>If no marks awarded, SC1 for (£)525.32 (outward flight only and £63.22 used for flight cost) Or SC1 for (£)510.48 (return flight and (£)59.51 used for flight cost)</p>
<p>Organisation and communication</p> <p>Writing</p>	<p>OC1</p> <p>W1</p>	<p>For OC1, candidates will be expected to:</p> <ul style="list-style-type: none"> • 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 <p>For W1, candidates will be expected to:</p> <ul style="list-style-type: none"> • 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.

<p>2.(d) No and full explanation including appropriate calculation referring to cm ↔ mm conversion e.g. “55cm by 44cm by 25cm are all within the required dimensions” “560mm by 450mm by 250mm, so Tomos’s rucksack are all within the required dimensions” “550mm is less than 560mm AND 440mm is less than 450mm” “55cm is less than 56cm AND 44cm is less than 45cm”</p>	<p>E2</p>	<p>Allow E1 for partial explanation e.g.No and at least one correct conversion seen</p> <ul style="list-style-type: none"> • E2 explanation with one conversion error • for sight of 55cm by 44cm by 25cm • for sight of 560mm by 450mm by 250mm • “the dimensions of Tomos’s rucksack are all within the required dimensions” • “all Tomos’s dimensions are less” • “550mm is less than 560mm” • “440mm is less than 450mm” • “55cm is less than 56cm” • “44cm is less than 45cm” <p>Award E2 if Yes ticked and full explanation including appropriate calculation referring to cm ↔ mm conversion and that Tomos that would not have to pay, otherwise E1 for Yes ticked but explanation clearly implying that the dimensions are within the requirements.</p>									
<p>2.(e)</p> 	<p>B1</p>										
<p>3. ✓ Evidence of counting area Area in range 39 – 45 (cm² or m²)</p> <p style="text-align: center;">Area ÷ 5(m²)</p> <p style="text-align: center;">Correct whole number of tins</p> <p style="text-align: center;">(Cost of tins =) number of tins × (£)32.7(0)</p> <p style="text-align: center;">Correct answer</p>	<p>M1 A1</p> <p>M1</p> <p>A1</p> <p>M1</p> <p>A1</p>	<p>Look at diagram</p> <p>FT ‘their area’ ÷ 5(m²)</p> <p>Must be rounded up</p> <table border="1"> <thead> <tr> <th>Area</th> <th>Tins</th> <th>Cost</th> </tr> </thead> <tbody> <tr> <td>39, 40</td> <td>8</td> <td>(£) 261.6(0)</td> </tr> <tr> <td>41, 42, 43, 44, 45</td> <td>9</td> <td>(£) 294.3(0)</td> </tr> </tbody> </table> <p>FT ‘their area’ ÷ 5(m²) rounded up to a whole number</p> <p>FT ‘their derived number of tins’ × (£)32.7(0)</p> <p>FT only if whole numbers of tins × (£)32.7(0)</p> <p>If no marks or only 1st M1 awarded, award SC1 for sight of unsupported 8 or 9 tins SC2 for 8 tins and (£) 261.6(0) OR 9 tins and (£) 294.3(0)</p>	Area	Tins	Cost	39, 40	8	(£) 261.6(0)	41, 42, 43, 44, 45	9	(£) 294.3(0)
Area	Tins	Cost									
39, 40	8	(£) 261.6(0)									
41, 42, 43, 44, 45	9	(£) 294.3(0)									

<p>4(a)(i) $4/7 \times 4.97$ or $4.97 - 3/7 \times 4.97$</p> <p style="text-align: right;">(£)2.84</p>	<p>M1</p> <p>A1</p>	<p>Or equivalent ($4.97 - 2.13$).</p> <p>Allow, for M1 only, use of</p> <ul style="list-style-type: none"> • 0.57×4.97 • $4.97 - 0.428 \times 4.97$ • $4.97 - 0.43 \times 4.97$ <p>Do not allow use of 0.6×4.97 or $4.97 - 0.42 \times 4.97$</p> <p>CAO</p>																													
<p>4(a)(ii) $2 \times 8.5(0) \times 0.74$ or $2 \times 8.5(0) - 2 \times 8.5(0) \times 0.26$</p> <p style="text-align: right;">(£)12.58</p>	<p>M1</p> <p>A1</p>	<p>Or equivalent ($17 - 4.42$)</p> <p>If no marks, award SC1 for an answer of either</p> <ul style="list-style-type: none"> • (£)6.29 (one flag bought) • (£)14.79 (only one of the 2 flags reduced by 26%) <p><i>If no marks in (i) and (ii), award SC1 in (ii) for answers of (£)2.13 and (£)4.42 respectively</i></p>																													
<p>4(b) $\frac{1}{3}$</p>	<p>B1</p>																														
<p>5. Consistent method to find cost per kg or quantity per £ or p, e.g.</p> <table border="1"> <tbody> <tr> <td>Bird Feast</td> <td>$16(.)20 \div 12.55$</td> <td>$12.55 \div 16(.)20$</td> </tr> <tr> <td>Cheep Feed</td> <td>$32(.)00 \div 25$</td> <td>$25 \div 32(.)00$</td> </tr> <tr> <td>Kind to birds</td> <td>$15(.)60 \div 12$</td> <td>$12 \div 15(.)60$</td> </tr> </tbody> </table> <p>Consistent accurate evaluation pence or £ per kg or quantity per £ or p, e.g.</p> <table border="1"> <thead> <tr> <th></th> <th>£ (p) / kg</th> <th>£ / 25kg</th> <th>kg / p</th> <th>kg / £</th> </tr> </thead> <tbody> <tr> <td>Bird Feast</td> <td>1(.)29(08..)</td> <td>32.27...</td> <td>0.0077..</td> <td>0.77...</td> </tr> <tr> <td>Cheep Feed</td> <td>1(.)28</td> <td>32</td> <td>0.0078 ...</td> <td>0.78...</td> </tr> <tr> <td>Kind to birds</td> <td>1(.) 3(0)</td> <td>32.50</td> <td>0.00769</td> <td>0.769...</td> </tr> </tbody> </table> <p>Conclusion 'Cheep Feed'</p>	Bird Feast	$16(.)20 \div 12.55$	$12.55 \div 16(.)20$	Cheep Feed	$32(.)00 \div 25$	$25 \div 32(.)00$	Kind to birds	$15(.)60 \div 12$	$12 \div 15(.)60$		£ (p) / kg	£ / 25kg	kg / p	kg / £	Bird Feast	1(.)29(08..)	32.27...	0.0077..	0.77...	Cheep Feed	1(.)28	32	0.0078 ...	0.78...	Kind to birds	1(.) 3(0)	32.50	0.00769	0.769...	<p>M2</p> <p>A2</p> <p>E1</p>	<p>A valid method is comparison in pairs, when cheaper of first pair used in further comparison</p> <p>M1 for any 2 consistent calculations</p> <p>M0 for any 1 calculation shown</p> <p>Consistent place value and any multiple of these</p> <p>A1 for any 2 consistent evaluations</p> <p>ISW</p> <p>Consistent place value and any multiple of these</p> <p>Do not accept Bird Feast truncated to (£)1.30 per kg unless (£)1.29(08...) seen previously</p> <p>Allow 0.76 (kg / £) or 0.77 kg / £ for Kind to birds</p> <p>FT provided at least M1, A1 previously awarded for appropriate conclusion based on all 3 being considered</p>
Bird Feast	$16(.)20 \div 12.55$	$12.55 \div 16(.)20$																													
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<p>6(a) 4</p>	<p>B1</p>																														
<p>6(b) 21</p>	<p>B1</p>																														
<p>6(c) 24</p>	<p>B1</p>																														
<p>6(d) $100 \times \frac{4}{34}$ or $100 \times 4 \div 34$</p> <p style="text-align: right;">11.8 (%)</p>	<p>M2</p> <p>A2</p>	<p>M1 for 100 multiplied by a fraction with either the correct numerator, or the correct denominator, except M0 for $100 \times 4 \div 100$</p> <p>OR</p> <p>M1 for sight of $\frac{4}{34}$ or $4 \div 34$</p> <p>CAO. Must be correct to 1 decimal place</p> <p>A1 for 11.7(...%)</p>																													

<p>7(a)(i) Angle $55^\circ (\pm 2^\circ)$ or $15.277\dots(\%) (\pm 0.55\dots\%)$</p> <p>$1080 \times 55 (\pm 4) \div 360$ or $3 \times 55 (\pm 4)$ or $1080 \times 15.277\dots (\pm 1.11\dots)$</p> <p>165 (people)</p>	<p>B1</p> <p>M1</p> <p>A1</p>	<p>Sight of 55 ignoring any incorrect units is B1 only, until used in a relevant calculation</p> <p>FT for M1 only if the angle is out of tolerance but within $\pm 4^\circ$ or equivalent working with percentage $\pm 1.11\dots\%$</p> <p>Ignore incorrect units given OR a whole number in the inclusive range 159 to 171 (people) only as FT from working with $55^\circ \pm 2^\circ$ or $15.277\dots\% \pm 0.55\dots\%$ Do not FT beyond tolerance of $\pm 2^\circ$ or $\pm 0.55\dots\%$</p> <p><i>Check diagram for angles or percentages</i></p>
<p>7(a)(ii) Carrots $100^\circ \pm 2^\circ$ and Sprouts $35^\circ \pm 2^\circ$ or $27.77\dots\% \pm 0.55\%$ and $9.722\dots\% \pm 0.55\%$ or appropriate sight of $65^\circ (\pm 4)$</p> <p>$1080 \times 100 (\pm 2) \div 360 - 1080 \times 35 (\pm 2) \div 360$, or $1080 \times 65 (\pm 4) \div 360$ or $3 \times 65 (\pm 4)$ or $3 \times 100 (\pm 2) - 3 \times 35 (\pm 2)$ or $\frac{(100 (\pm 2) - 35 (\pm 2)) \times 1080}{360}$ or equivalent</p> <p>195 (people)</p>	<p>B1</p> <p>M1</p> <p>A1</p>	<p>Both angles within tolerance</p> <p>FT $65 (\pm 4) \times$ 'their number of people per degree' FT for M1 only if one angle is out of tolerance but this one angle is within $\pm 4^\circ$ or equivalent working with percentage $\pm 1.11\dots\%$</p> <p>OR a whole number in the inclusive range 183 to 207 (people) only as FT tolerance in angles or percentages</p> <p><i>Check diagram for angles or percentages</i></p>
<p>7(b) $420 - 420 \times 3 \div 14$ or $420 \times (14 - 3) \div 14$ (= $420 - 90$)</p> <p>330 (people)</p> <p>$330 \times 2 \div 3$</p> <p>220 (people)</p>	<p>M1</p> <p>A1</p> <p>M1</p> <p>A1</p>	<p>Allow use of $\times 0.21$ as indication of $3 \div 14$</p> <p>CAO</p> <p>FT 'their derived 330', including use of 90 (FT use of 90 gives an answer of 60) Allow FT answer not being a whole number</p>
<p>7(b) <i>Alternative method</i> (Fraction who preferred frozen peas) $\frac{11}{14} \times \frac{2}{3}$ $\frac{22}{42}$ or equivalent</p> <p>(Number who preferred frozen peas) $\frac{22}{42} \times 420$ 220 (people)</p>	<p>M1</p> <p>A1</p> <p>m1</p> <p>A1</p>	<p>ISW</p> <p>FT from incorrect cancelling of $22/42$ for m1 only (A0)</p>
<p>8(a) Appropriate sight of (€) 6000</p> <p>(Tax at 15%) 0.15×6000 (= €900)</p>	<p>B1</p> <p>B1</p>	<p>Ignore £ for €</p> <p>If (a) is not attempted, accept calculations seen in (b)</p>
<p>8(b)</p> <p>(Tax at 22%) 0.22×20000 or $0.22 \times (30000 - 10000)$ or equivalent</p> <p>(€) 4400</p> <p>Total tax due (€) 5300</p>	<p>M2</p> <p>A1</p> <p>A1</p>	<p>Ignore £ for € M1 for $30000 - 10000$ (= €20000)</p> <p>CAO, not FT</p> <p>ISW FT 900 + 'their 4400' provided M2 previously awarded</p>