GCSE MARKING SCHEME

AUTUMN 2020

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

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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.

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WJEC GCSE MATHEMATICS – NUMERACY

AUTUMN 2020 MARK SCHEME

<table>
<tr><th>GCSE Mathematics Numeracy
Unit 2: Foundation Tier</th><th>Mark</th><th>Comments</th></tr>
<tr><td>1.(a) 197 (years)</td><td>B1</td><td></td></tr>
<tr><td>1.(b) (Abergwyn =) $6 \times 5 + 4 \times 2 + 2 \times 3$
44 (points)

(Llanbro =) $7 \times 5 + 3 \times 2 + (1 \times) 3 + (1 \times) 3$
47 (points)

(Ysgol) Llanbro (won the game by) 3 (points)</td><td>M1
A1

M1
A1

B1</td><td>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</td></tr>
<tr><td>2.(a)(i) 7 (months)</td><td>B1</td><td></td></tr>
<tr><td>2.(a)(ii)
Bar at February drawn at -2°C
Bar for July drawn at 15°C</td><td>B1
B1</td><td>If no marks award SC1 for indication of correct heights for both bars</td></tr>
<tr><td>2.(a)(iii) (Total of temperatures =) 66 (°C)

(Mean = 66) ÷ 12
5·5 (°C)</td><td>M1

m1
A1</td><td>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’ ÷ 12
CAO</td></tr>
<tr><td>2.(b)(i) £43.15</td><td>B1</td><td></td></tr>
<tr><td>2.(b)(ii)
<table><tr><td colspan="2">Return flight from Grenoble to Cardiff</td></tr><tr><td>Date</td><td>Saturday 4 January</td></tr><tr><td>Departing time</td><td>10:50</td></tr><tr><td>Arrival time</td><td>11:25</td></tr><tr><td>Cost</td><td>£59.51</td></tr></table></td><td>B2</td><td>B2 for all 3 correct entries
B1 for sight of 10:50 OR 11:25 OR £59.51</td></tr>
</table>

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2.(c) (Cost for 26kg bags =) 4×29.61 (=(£)**118.44**) OR $4 \times 29.61 \times 2$ (=(£)**236.88**)	M1	
(Cost for skis =) ((£)37×2 =) (£)**74**	B1	May be implied in later working
(Cost for snowboards =) $3 \times$ (£)39 (=(£)**117**) OR $3 \times$ (£)39×2 (= (£)**234**)	M1	Award M1B0M1 for unsupported (£)272.44 (B1 may be awarded later) Award M1B1M1 for unsupported (£)544.88 ISW
(Cost of 4 flights) = $4 \times$ (£)122.73 (= (£)**490.92**)	M1	
(Total for **both** journeys =) (£)236.88 + (£)74 + (£)234 + (£)490.92 OR $2 \times$ [(£)118.44 + (£)37 + (£)117] +(£)490.92	M1	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
(£) 1035.8(0)	A1	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. 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)
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.

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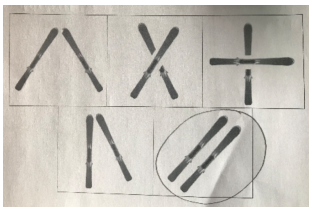
<table>
<tr><td>2.(d) No and full explanation including appropriate calculation referring to cm ↔ mm conversion
e.g.
“55cm by 44cm by 25cm are all within the required dimensions”
“560mm by 450mm by 250mm, so Tomos’s rucksack are all within the required dimensions”
“550mm is less than 560mm AND 440mm is less than 450mm”
“55cm is less than 56cm AND 44cm is less than 45cm”</td><td>E2</td><td>Allow E1 for partial explanation
e.g.No and at least one correct conversion seen
• 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”

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.</td></tr>
<tr><td>2.(e)
  </td><td>B1</td><td></td></tr>
<tr><td>3. ✓
Evidence of counting area
Area in range 39 – 45 (cm^2 or m^2)

Area ÷ 5(m^2)

Correct whole number of tins

(Cost of tins =) number of tins × (£)32.7(0)

Correct answer</td><td>M1
A1

M1

A1

M1

A1</td><td>Look at diagram

FT ‘their area’ ÷ 5(m^2)

Must be rounded up
<table><tr><th>Area</th><th>Tins</th><th>Cost</th></tr><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></table>FT ‘their area’ ÷ 5(m^2) rounded up to a whole number

FT ‘their derived number of tins’ × (£)32.7(0)

FT only if whole numbers of tins × (£)32.7(0)

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)</td></tr>
</table>

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<table>
<tr><td>4(a)(i) 4/7 × 4.97 or 4.97 - 3/7 × 4.97

(£)2.84</td><td>M1

A1</td><td>Or equivalent (4.97 – 2.13).
Allow, for M1 only, use of
• 0.57 × 4.97
• 4.97 - 0.428 × 4.97
• 4.97 - 0.43 × 4.97
Do not allow use of 0.6 × 4.97 or 4.97 - 0.42 × 4.97

CAO</td></tr>
<tr><td>4(a)(ii) 2×8.5(0)×0.74 or 2×8.5(0) – 2×8.5(0)×0.26

(£)12.58</td><td>M1

A1</td><td>Or equivalent (17 –4.42)

If no marks, award SC1 for an answer of either
• (£)6.29 (one flag bought)
• (£)14.79 (only one of the 2 flags reduced by 26%)

If no marks in (i) and (ii), award SC1 in (ii) for answers of (£)2.13 and (£)4.42 respectively</td></tr>
<tr><td>4(b) $\frac{1}{3}$</td><td>B1</td><td></td></tr>
<tr><td>5. <u>Consistent</u> method to find cost per kg or quantity per £ or p, e.g.

<table><tr><td>Bird Feast</td><td>16(.)20 ÷ 12.55</td><td>12.55 ÷ 16(.)20</td></tr><tr><td>Cheep Feed</td><td>32(.)00 ÷ 25</td><td>25 ÷ 32(.)00</td></tr><tr><td>Kind to birds</td><td>15(.)60 ÷ 12</td><td>12 ÷ 15(.)60</td></tr></table>
<u>Consistent</u> accurate evaluation pence or £ per kg or quantity per £ or p, e.g.

<table><tr><td></td><td>£ (p) / kg</td><td>£ / 25kg</td><td>kg / p</td><td>kg / £</td></tr><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></table>
Conclusion ‘Cheep Feed’</td><td>M2

A2

E1</td><td>A valid method is comparison in pairs, when cheaper of first pair used in further comparison
M1 for any 2 consistent calculations
M0 for any 1 calculation shown

Consistent place value and any multiple of these

A1 for any 2 consistent evaluations

ISW
Consistent place value and any multiple of these

Do not accept Bird Feast truncated to (£)1.30 per kg unless (£)1.29(08...) seen previously

Allow 0.76 (kg / £) or 0.77 kg / £ for Kind to birds

FT provided at least M1, A1 previously awarded for appropriate conclusion based on all 3 being considered</td></tr>
<tr><td>6(a) 4</td><td>B1</td><td></td></tr>
<tr><td>6(b) 21</td><td>B1</td><td></td></tr>
<tr><td>6(c) 24</td><td>B1</td><td></td></tr>
<tr><td>6(d) $100 \times \frac{4}{34}$ or $100 \times 4 \div 34$

11.8 (%)</td><td>M2

A2</td><td>M1 for 100 multiplied by a fraction with either the correct numerator, or the correct denominator, except
M0 for 100 × 4 ÷ 100
OR
M1 for sight of $\frac{4}{34}$ or 4 ÷ 34
CAO. Must be correct to1 decimal place
A1 for 11.7(...%)</td></tr>
</table>

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7(a)(i) Angle 55° (±2°) or 15.277...(%) (±0.55...%)	B1	Sight of 55 ignoring any incorrect units is B1 only, until used in a relevant calculation
1080 × 55 (±4) ÷ 360 or 3 × 55 (±4) or 1080 × 15.277... (±1.11..)	M1	FT for M1 only if the angle is out of tolerance but within ±4° or equivalent working with percentage ±1.11...%
165 (people)	A1	Ignore incorrect units given OR a whole number in the inclusive range 159 to 171 (people) only as FT from working with 55° ± 2° or 15.277..% ±0.55..% Do not FT beyond tolerance of ± 2° or ±0.55..% *Check diagram for angles or percentages*
7(a)(ii) Carrots 100° ±2° **and** Sprouts 35° ±2° or 27.77..% ±0.55% **and** 9.722..% ±0.55% or appropriate sight of 65° (±4)	B1	Both angles within tolerance
1080 × 100 (±2) ÷ 360 - 1080 × 35 (±2) ÷ 360, or 1080 × 65 (±4) ÷ 360 or 3 × 65 (±4) or 3 ×100 (±2) – 3 × 35 (±2) or $\frac{(100\ (\pm2) - 35\ (\pm2))}{360} \times 1080$ or equivalent	M1	FT 65 (±4) × 'their number of people per degree' FT for M1 only if one angle is out of tolerance but this one angle is within ±4° or equivalent working with percentage ±1.11...%
195 (people)	A1	OR a whole number in the inclusive range 183 to 207 (people) only as FT tolerance in angles or percentages *Check diagram for angles or percentages*
7(b) 420 - 420 × 3 ÷ 14 or 420 × (14 – 3) ÷ 14 (= 420 – 90)	M1	Allow use of × 0.21 as indication of 3 ÷ 14
330 (people)	A1	CAO
330 × 2 ÷ 3	M1	FT 'their derived 330', including use of 90
220 (people)	A1	(FT use of 90 gives an answer of 60) Allow FT answer not being a whole number
7(b) Alternative method *(Fraction who preferred frozen peas)* $\frac{11}{14} \times \frac{2}{3}$	*M1*	
$\frac{22}{42}$ *or equivalent*	*A1*	*ISW*
(Number who preferred frozen peas) $\frac{22}{42} \times 420$	*m1*	*FT from incorrect cancelling of 22/42 for m1 only (A0)*
220 (people)	*A1*	
8(a) Appropriate sight of (€) 6000	B1	Ignore £ for €
(Tax at 15%) 0.15× 6000 (= €900)	B1	If (a) is not attempted, accept calculations seen in (b)
8(b) (Tax at 22%) 0.22 × 20000 or 0.22 × (30000 – 10000) or equivalent	M2	Ignore £ for € M1 for 30000 – 10000 (= €20000)
(€) 4400	A1	CAO, not FT
Total tax due (€) 5300	A1	ISW FT 900 + 'their 4400' provided M2 previously awarded

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