GCSE MARKING SCHEME

AUTUMN 2023

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

INTRODUCTION

This marking scheme was used by WJEC for the 2023 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 2023 MARKING SCHEME

GCSE Numeracy **Unit 1: Foundation Tier**	Mark	Comments
1(a) (i) A 3cm by 2cm rectangle drawn so that it is at least 2cm from the back of the house at least 1cm from everything else.	 B1 B1	Penalise -1 once only if the diagram is not a 3cm by 2cm rectangle but is another sized square or rectangle.
1(a)(ii) 6 m^2	B1	Do NOT FT from 'their rectangle' drawn in (a)(i)
1(b)(i) an acute angle	B1	
1(b)(ii) 42° (±2°) drawn at T	B1	Use of overlay NOTE: The angle drawn must be drawn at point T, using the given **horizontal** line. However, do award B1 if they redraw the given diagram and the angle of 42° (±2°) is correct. Award B1 for an angle of 42° (±2°) clearly indicated if they use a vertical line at T or have extended the horizontal line to the left of T (i.e. drawn 138° and then indicated 42°).
1(b)(iii) 180 – 69 111 (°)	M1 A1	Accept 69 + 42 or 21 + 90 or 31 + 80

2(a)

Airport	Number of passengers (to the nearest million)
Cardiff	**2 000 000**
Bristol	9 000 000
Birmingham	**12 000 000**
Exeter	**1 000 000**
Leeds-Bradford	4 000 000

Airport	
Cardiff	
Bristol	()
Birmingham	
Exeter	
Leeds-Bradford	

B1

B1

B1

B3

Answers in the table and pictogram take precedence.

Accept the word million used eg 2 million

Penalise -1 only for **consistent** use of incorrect place value for all 3 values.

Award B3 for all 4 correct entries
Award B2 for 3 correct entries
Award B1 for 2 correct entries

FT 'their values stated in the table'
FT implied use of million (i.e. with incorrect place value given in the 1st table but then used as million in the pictogram)

If a different symbol that is split into 4 is consistently used, then penalise -1 only.
If a different scale used then B0.

2(b)(i) Yes and suitable reason given e.g.

'half of 80 million is 40 million (and 46 086089 is more than 40 million)'
'46 million is more than 40 million (which is half of 80 million)'
'Double 46 million is 92 million (which is more than 80 million)'
'because half is 40000000 so Gatwick had more than half'
'because half of 80000000 is forty million (but Chris was correct because it was 46086089 which is more than half)'
'46086089 million is more than half of eighty million (as 40000000 is half of it)'
'because 46086089 doubled is greater than 80000000'

E1

Allow yes and
'half of 80 is 40'

Do not allow no with a suitable reason e.g.
'No, because half of 80 is 40 and Chris had 46 so he had extra people'
'No, because half of 80 million is 40 million and there was 46 million used in Gatwick'

2(b)(ii) 261 909

B1

2(c) 2508 × 3 or 2508 + 2508 + 2508 or equivalent

7524 (litres)

M1

A1

For 2508 + 2508 + 2508, allow if no addition sign seen but addition is implied award M1.

3(a) (Thursday) 28th (December)	B2	Answer space takes precedence Award B1 for any one of the following (for missing one criteria): • (Friday) 29th (December) • (Saturday) 30th (December) • (Sunday) 31st (December) • (Monday) 4th (December)(earliest possible date)
3(b) (left eye) 1.25 – 0.75 or 0.25 + 0.25 **OR** (right eye) 2.25 – 1.50 or 0.5 + 0.25	M1	Check table for workings. Allow embedded values e.g. 0.75 + **0.5(0)** = 1.25 **OR** 1.50 + **0.75** = 2.25 Allow place value errors e.g. 125 - 75
Right indicated **AND** 0.5 **AND** 0.75 seen	A1	Allow M1A1 if right is indicated and 50 **and** 75 seen (consistent use of non-decimals). If no marks awarded, award SC2 for right indicated and saying has increased by 0.25 or 25 more (than the left one)
3(c) (Cost of eye test) 32 – 0.25 × 32 or equivalent (£)24	M1 A1	If M0A0 award SC1 for (£)8
(Cost of frames) 84 – 1/3 × 84 or equivalent (£) 56	M1 A1	If M0A0 award SC1 for (£)28
(Total cost =) 24 + 56 + 39	M1	FT 'their derived 24' and 'their derived 56' including the use of (£)8 and (£)28
(£)119	A1	Award final A1 only if at least one M1 or SC1 has been awarded **and** there are derived values for both eye test and frames. e.g 8 + 56 + 39 = 103 award M0A0SC1M1A1M1A1. Use of (£)8 and (£)28: 8 + 28 + 39 (=£75) award SC1 SC1 M1 A1 If M0A0 awarded for the last 2 marks, award SC1 for an answer of (£)80 (cost of lenses not included)
3(c) 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.

4. Showing (65%), 60%, 86%, (80%) OR 65/100, 60/100, 86/100, 80/100 OR 6.5/10, (6/10) 8.6/10, 8/10 OR 0.65, 0.6(0), 0.86, 0.8(0) OR four correct calculations for a common amount Lowest ⟶ Highest Subject: English, Maths, PE, History Result: 6/10, 65%, 80%, 43/50	B2 B1	Values may be shown in working or in the table B2 for all correct % OR all correct decimals all correct fractions <u>with a common denominator</u> OR correct work using a common amount OR a valid combination that allows full comparison e.g. 6/10 = 60% and 80% = 40/50 B1 for one correct conversion that allows a comparison with another value Allow any unambiguous indication (e.g. 'converted values'). FT 'their converted values' only if at least B1 previously awarded If no marks awarded, award SC1 for any one of the following: • a correct order of given values i.e. 6/10, 65%, 80%, 43/50 (ignore subjects) • a correct order of subjects i.e. English, Maths, PE, History (can ignore any values given)
5. 20 × 25 + 28 × 15 + 17 × 10 (= 500 + 420 + 170) (£) 1090	M2 A2	M1 for either • sight of the **sum** of any 2 unique appropriate products (not multiples of these products) or • for sight of 20×25, 28×15 and 17×10 CAO. Answer space takes precedence FT from M2 or M1 to award A1 for either • any 2 of 500, 420 and 170 in a correctly evaluated sum of 3 products or • sight of 500, 420 and 170 **<u>If no marks</u>**, • award SC1 for sight of (Saturday and Sunday interchanged) 17 × 25 + 28 × 15 + 20 × 10 **AND** EITHER SC2 for an answer of (£)1045 OR SC1 for one of the following: • any 2 of 425, 420 and 200 in a correctly evaluated sum of 3 products • sight of 425, 420 and 200 • award SC1 for sight of (table followed in order used in Venn) 20 × 25 + 17 × 15 + 28 × 10 **AND** EITHER SC2 for an answer of (£)1035 OR SC1 for one of the following: • any 2 of 500, 255 and 280 in a correctly evaluated sum of 3 products • sight of 500, 255 and 280

6(a) $\frac{90}{360}$ × 540 or ¼ × 540 or 540 ÷ 4 or equivalent 135 (people)	M1 A1	 Answer space takes precedence When repeatedly halving 540, if there are errors, award M0 A0 unless indication that the intention is to divide by 2, e.g. • 540 ÷ 2 = 220 (error) , 220 ÷ 2 = 110 is M1 A0 • 540, 220, 110 is M0 A0
6(b) Angle measured 170(°) ± 2(°) 0.4 × 170(° ± 2°) or equivalent 68(°) or angle in the range 67(°) to 69 (°)	B1 M1 A1	May be seen on the pie chart FT for 'their angle, provided 90° < 'their angle' < 180° Any method of repeated addition must **clearly** be addition to 40% Only allow angles in this range provided not from incorrect working Answer space takes precedence Allow A1 for labelled angle on the pie chart if no **final** answer given. On FT, using 'their 170', allow angles correctly rounded or truncated to the nearest degree
6(c) 540 − $\frac{7}{10}$ × 540 or (1 - $\frac{7}{10}$) × 540 or $\frac{3}{10}$ × 540 162 (not children)	M1 A1	For complete method Answer space takes precedence If no marks, award SC1 for sight of ($\frac{7}{10}$ × 540 =) 378

7(a)(i) 2.4 (kg)	B2	Answer space takes precedence B1 for any one of the following: • attempt to multiply 200 by 12 which may include a place value error, or equivalent shown as repeated addition, e.g. 2 × 12, 20 × 12, 2000 × 12, …. • sight of 2400 in working • an answer of 2400 • $\frac{48}{4}$ × 200 • 2kg 400g
7(a)(ii) 1 : 8 : 2	B2	Answer space takes precedence If units (g) are included then B1 only. B1 for sight of any one of the following (ignoring inclusion of 'g'): • 25 : 200 : 50 • 5 : 40 : 10 • equivalent multiple of the ratio 1 : 8 : 2 • a ratio involving 1, 8 and 2 in an incorrect order
7(b)(i) 6 g	B1	
7(b)(ii) (Daily recommendation =) 0.8 × 70 56 (g) 25 (%)	M1 A1 A2	Allow if embedded in further incorrect working only if this working includes the use of '14' Ignore any incorrect unit given, e.g. % or kg FT $\frac{14}{\text{'their 0.8 × 70'}}$ for possible A2 or A1 On FT allow rounding or truncation of the final percentage A1 for one of the following: • the fraction $\frac{14}{56}$ or $\frac{7}{28}$ or $\frac{1}{4}$ • a clear full method finding percentages of 56(g) clearly working towards 14(g)

8(a) ($\frac{1}{5}$ is \$40, total amount of gift is) 40 × 5 or 40 ÷ $\frac{1}{5}$	M1	Ignore \$ written as £ or €, etc
($)200	A1	ISW
(Amount gifted to animal charity is ¼ × 200) ($)50	B1	FT ¼ × 'their 200' correctly evaluated, provided • 'their 200' ≠ 40 • 'their 200' ≠ 200 – 40 (= 160) Allow FT 'their 200' = 8 *(see note below)*
(Gift to medical research is) ($) 200 – 40 – 50	M1	FT 'their derived 200' – 40 – 'their 50', provided > 0
($) 110	A1	FT provided both M marks previously awarded *If no marks, award SC1 for* *(40 – 1/5 × 40 – ¼ × 40 = 40 – 8 – 10 =) ($)22*
8(a) <u>Alternative method</u> *(Total amount of gift is) 40 × 5 or 40 ÷ $\frac{1}{5}$*	*M1*	*Ignore \$ written as £ or €, etc*
($)200	*A1*	*ISW*
(Proportion given to medical charity) *(1 – $\frac{1}{5}$ – $\frac{1}{4}$ =)* $\frac{11}{20}$ *or (1 – 0.2 – 0.25 =)* 0.55 *or (100 – 20 – 25 =)* 55 (%)	*B1*	*Allow for proportion given to children's and animal charity clearly shown as* $\frac{9}{20}$ *, 0.45 or 45 (%)*
(Gift to medical research is) $\frac{11}{20}$ × 200 *or 200 –* $\frac{9}{20}$ × 200	*M1*	*FT 'their incorrectly evaluated 1 –* $\frac{1}{5}$ – $\frac{1}{4}$ *' or* *'their incorrectly evaluated* $\frac{1}{5}$ + $\frac{1}{4}$ *as appropriate and 'their derived 200', provided* • *'their 200'* ≠ 40 • *'their 200'* ≠ 200 – 40 (= 160) *Allow FT 'their 200' = 8*
($) 110	*A1*	*FT provided both M marks previously awarded*

8(b) Sight of 30 000 – 10 000 or 20 000 (30 000 – 10 000) × 0.22 or 20 000 × 0.22 or equivalent ($) 4400	 B1 M1 A1	Ignore incorrect units given throughout Any repeated addition method of 10% and 1% must clearly show addition to 22% CAO. Mark final answer
9(a) 209° ± 2°	B1	Answer space takes precedence
9(b)(i) Answer in the range 21 (km) to 25 (km)	B1	Answer space takes precedence
9(b)(ii) Correct interpretation of the map scale, e.g. • 1 cm represents 25 000 cm or 250 m • 2 cm represents 50 000 cm or 500 m or 0.5 km • 4 cm represents 100 000 cm or 1 000 m or 1 km OR Correct conversion 12 km to cm, 25 000 cm to km or equivalent, e.g. • (12 km =) 1 200 000 (cm) • (25 000 cm =) 0.25 (km) • sight of 1200 and 25 • sight of 12 and 0.25 12 ÷ 0.25 or 12 × 4 or 1 200 000 ÷ 25 000 or 1 200 ÷ 25 or equivalent 48 (cm)	B1 M1 A1	 Ignore place value error, e.g. 12 ÷ 'their number with digits 25', 12 × 'their number with digit 4' CAO
9(b)(ii) <u>Alternative method</u> *(Original map scale is 3 cm : 12 km =)* *3 : 1 200 000 or 1 : 400 000 or equivalent* $\frac{400\,000}{25\,000}$ × 3 or 16 × 3 or equivalent *48 (cm)*	*B1* *M1* *A1*	 *Ignore errors in place value* *CAO*