GCSE MARKING SCHEME

SUMMER 2023

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

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.

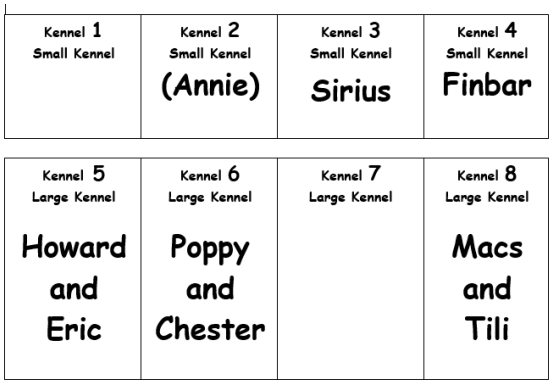
WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

WJEC GCSE MATHEMATICS - NUMERACY

SUMMER 2023 MARK SCHEME

Unit *2*: Foundation Tier	**Mark**	**Comments**
1(a) 127 miles	B1	
1 (b) Identification of the 4 correct distances needed: 160, 69, 92, 42	B1	May be seen in the bullet list or in the table (only 4 values to be explicitly identified for B1) May be implied in later working e.g. a total of 726 implies adding the 4 correct values twice.
160 + 69 + 92 + 42	M1	FT the sum of 4 distances provided at least 3 correct For example: Award B0M1A1 for: 160 + 125 + 92 + 42 = 419
363 (miles)	A1	
		If no marks awarded, award SC1 for: • 3 (out of the 4) correct values added and evaluated correctly eg (69 + 92 + 42 =) 203 • 4 values, with only 2 being correct distances, added and evaluated correctly eg (127 + 125 + 92 + 42 =) 386 • 5 values, with the 4 correct values, added and evaluated correctly Award SC0 for answer of 615 from all 6 distances added
1 (c) (Snowdon =) 4 (hours) 30 (mins) or 4 ½ (hours) or 270 (minutes)	B1	Allow incorrect notation but penalise in OCW Allow 4:30 or 4.3(0)
(Cader Idris =) 5 (hours) 20 (mins) or 320 (minutes)	B1	Allow 5:20 or 5.2(0)
(Pen y Fan =) 2 (hours) 15 (mins) or 135 (minutes)	B1	Allow 2:15 or 2.15
(Total time =) 4 (hours) 30 (mins)+5 (hours) 20 (mins)+2 (hours) 15 (mins) or equivalent	M1	Award M1 for adding 'their' 3 times even if there is a mix of units and/or notation. FT 'their 4 (hours) 30 (mins) ' + 'their 5 (hours) 20 (mins)' + 'their 2 (hours) 15 (mins)' or equivalent
(Total time =) 12 (hours) 5 (mins)	A1	FT 'their total time' correctly evaluated and converted into hours and minutes Award A1 for 12:05 or 12.05 but A0 for 12:5 or 12.5 Award A0 for an answer of 11 (hours) 65 (mins) Note: 4 hours 30mins + 5 hours 20 mins + 2 hours 55 mins = 12 hours 5 mins is awarded B1B1B0M1A0
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.

1 (d) Sight of 10·05 (km)	B1	May be implied in later working
31·05 – 14·6 – 10·05 or 31.05 – (14.6 + 10.05) or 31.05 – 24.65	M1	FT 'their 10·05' for M1 including 10 050
6·4 (km)	A1	FT 31·05 – 14·6 – 'their 10.05' correctly evaluated and given in km. For A1, do not FT use of 10050(m) or a value that leads to a negative answer Note- use of 10.5 instead of 10.05: 31.05 – (14.6 + 10.5) or 31.05 – 25.1 = 5.95 is awarded B0M1A1
Alternative method: *Sight of 31 050 (m) AND 14 600 (m)*	*B1*	*May be implied in later working*
31 050 – 14 600 – 10 050 or equivalent	*M1*	*FT 'their 31 050' and 'their 14 600' for M1 including 31·05 and 14·6*
6·4 (km)	*A1*	*FT 'their 31 050' and 'their 14 600' correctly evaluated **AND** the answer given in km*
1 (e) 540+1452+53+28+280+350+300+500+340 (=(£)3843)	M1	Attempt to add all the values. Allow a total in the range of 3303 to 4383 as evidence of adding Allow one omission or one repeated value
÷ 9	m1	FT 'their 3843' Award M1 m1 A0 for 540+1452+53+28+280+350+300+500+340 ÷ 9 (=3540.77…)
(£)427 (this is more than £400)	A1	CAO
Alternative method: *540+1452+53+28+280+350+300+500+340 (=(£)3843)*	*M1*	*Attempt to add all the values.* *Allow a total in the range of 3303 and 4383 as evidence of adding* *Allow one omission or one repeated value*
400 × 9 (= £)3600)	*M1*	
(£)3843 is more than (£)3600	*A1*	*CAO*
2.(a) 5·9 + 1·9 + 5·9 + 1·9 or equivalent 15·6 (m)	M1 A1	If no marks awarded, award SC1 for 10·6(m) (correctly evaluated perimeter of the base of small kennel)
2 (b)	B3	B3 for all correct kennels B2 for 3 or 4 correct kennels B1 for 1 or 2 correct kennels



3. (Student Loan repayment =) $0.04 \times 27\,000$ or equivalent	M1	Answer space takes precedence Award M1 for a full correct method that would lead to a correct answer of 1080 e.g. 1% = 270, 4% = 4 × 270
(£)1080	A1	If M0A0 awarded for the **student loan**, award SC1 for: • (5105 - 0.04 × 27000 =) 4025 • (0.04 × (27000 – 5105) =) 875(.80) or 876 • (0.04 × 5105 =) 204(.20) • (5105 - 0.04 × 5105 =) 4900(.80) or 4901 • (27000 – 0.04 × 27000 =) 25920
(Pension Scheme contribution =) 27 000 ÷ 20 or 0.05 × 27000 or equivalent	M1	
(£)1350	A1	If M0A0 awarded for the **pension scheme contribution,** award SC1 for: • (1080 ÷ 20 = £) 54 • 'their 1080' ÷20 correctly evaluated rounded or truncated e.g. (875.8 ÷20=) 43(.79) or 44 • ((27000 – 1080) ÷20=) 1296 • ((27000 – 5105) ÷20=) 1094(.75) or 1095 • (5105 ÷20 =) 255(.25) • (27000 – 27000 ÷ 20 =) 25650 • ((27000 – 5105 – 1080) ÷ 20 =) 1040(.75) or 1041
(Total =) (£)7535 ISW	B1	FT (£)5105 + 'their 1080' + 'their 1350' correctly evaluated **provided** 1 mark previously awarded Sight of a total of (£)2430 implies M1A1 M1A1 B0 (from 1080 + 1350) **Unsupported** (£)19 465 implies (£)27000 - (£)7535 Award M1A1 M1A1 B0

4. Sight of 10 (chairs) $4 \times 17.84 + 10 \times 9.47$ (£)166.06	B1 M2 A2	May be implied in later working Award B1 for correct diagram drawn with 4 tables and 10 chairs shown FT for M2 for 4 tables **AND** 'their 10 chairs' where the number of chairs > 6 e.g. use of 4 tables and 8 chairs Award M1 for: • 4 × 17.84 (= (£)71.36)) • 10 × 9.47 (= (£)94.7(0)) • 'their number of chairs > 6' × 9.47 Only award A2 if 4 tables have been considered with their chairs > 6 Award A1 for • (£)71.36 • (£)94.7(0) • 'their number of chairs > 6' × 9.47 correctly evaluated Note: A total cost needs to be checked as it may imply M1 A1 Note: common incorrect totals are: $4 \times 17.84 + 12 \times 9.47$ = £185 $4 \times 17.84 + 16 \times 9.47$ = £222.88 $4 \times 17.84 + 24 \times 9.47$ = £298.64 These are awarded B0M2A2
5(a) 59°F	B1	
5(b) (40°C is) 68 + 18 +18 104 (°F)	M1 A1	Accept an appropriate calculation that would lead to a correct answer of 104°F May be shown in stages Allow $\frac{9}{5} \times 40 + 32$ or $1.8 \times 40 + 32$ or $9 \times 8 + 32$ or $18 \times 4 + 32$ FT from (a) provided 'their 59' > 0, i.e. $59 + 2.5 \times 18$ or $59 + 45$ or equivalent Answer space takes precedence
6(a)(i) 2¼ × 60 × 90 or 60 × 90 × 2 + 15 × 90 or 135 × 90 or 2¼ × 60 × 0.9(0) or 2¼ × 54 or equivalent (£) 121.5(0)	M2 A1	May be seen in stages Must be an indication of a full and complete method that could lead to a correct answer Allow M2 if initially a correct method is seen but an incorrect interpretation of ¼ is seen in further working, e.g. as 0.15 or 25 minutes. Do **not** award M2 if the start of working contains an error, e.g. 2.15 × 60 × 90 (M1) or 120 × 90 with 25 × 90 (M1) M1 for any one of the following: • (2¼ × 60 = 120 + 15 =) 135 (minutes) • 'their time' × (0.)90, e.g. ○ 2 × (0.)90 (= 180 or 1.80) ○ 2¼ × (0.)90 (= 202.5 or 2.025) ○ 60 × (0.)90 (=£54 or 5400p / hour) ○ 120 × 90 (= 10800p for 2 hours) ○ 120 × 0.9(0) (= £108 for 2 hours) CAO. Answer space takes precedence An answer of 12150(p) is M2 A0

6(a)(ii) 72(.00) ÷ 60 or 60 × 120 = 7200 or 60 × 1.2 = 72 or 6 × 12 = 72 or equivalent or 120(p) (per minute) or (£)1.2(0) (per minute) Landline, Band C	M1 A2	<u>Working **must** be shown to support choice of boxes</u> Allow M1 for Landline and C selected with working for Band A (£)18 or 1800(p) **and** Band B (£)36 or 3600(p) Both boxes must be indicated A1 for explicit sight of 120(p) or (£)1.2(0) (per minute) (not embedded) If no marks, award SC1 for boxes Landline **and** Band C indicated
6(b) (Cost in £) 2151.3(0) ÷ 143.42 (£) 15 (Length of call) 15 ÷ (0.)3(0) or 1500 ÷ 30 or 50 × (0.)30 = 15(.)00 or equivalent 50 (minutes)	M1 A1 m1 A1	Answer space takes precedence, if blank may be implied in further working Allow from a trial and improvement method Allow a place value error in intended division, e.g. 15 ÷ 3 FT 'their 2151.3(0) ÷ 143.42' CAO with no incorrect working seen Answer space takes precedence If answers are reversed ((£)50 and 15 (minutes)), award M1 A0 m1 A1 (not from incorrect working)

7(a) Gwesty Arwel (costs are) (1 night: 12 single rooms and 18 twin rooms) (84 × 12 and 102 × 36 ÷ 2) (£)1008 and (£)1836 OR (£)2844 OR (3 nights 12 single rooms and 18 twin rooms) (3 × 84 × 12 and 3 × 102 × 36 ÷ 2) (£)3024 and (£)5508 OR (£)8532	B2	B2 or B1 may be seen or implied in further working B1 for any one of the following: • (12 single rooms for 1 night) (£)1008 • (18 twin rooms for 1 night) (£)1836 • (12 single rooms for 3 nights) (£)3024 • (18 twin rooms for 3 nights) (£)5508
(Total discounted cost for 3 nights) 84 × 12 + 102 × 36 ÷ 2 × 3 × (1 – 0.14)	 M1 M1	For both M marks, awarded in either order, FT 'their cost of single rooms + twin rooms' Calculations may be shown separately as single rooms and twin rooms, but must include intention to add costs in further working
(£) 7337.52	A1	CAO If M1 M0 A0, award SC1 for (£)1194.48 or correctly evaluated total discount for 'their **3** nights'
Hotel Glan y Môr (costs for 5 nights are) 12 × 58 + 36 × 34 (× 5) or (696 + 1224) (× 5) or 1920 (× 5) or 3480 + 6120	M1	A single night calculation may be embedded in a calculation for a number of nights other than 5 or 2 different numbers provided not '× a' for single and '× 2a' for the twin rooms
(£) 9600	A1	CAO
(Total cost of the 8 nights is 7337.52 + 9600 =) (£) 16937.52	B1	FT adding 'their derived perceived final costs' provided at least 4 marks previously awarded
7(b) (Number of litres of fuel) (33860 – 32474) ÷ 4 = 346.5 (litres)	M2 A1	M1 for (km travelled) 33860 – 32474 (= 1386) Allow rounded to 347 or truncated to 346, provided not from incorrect working, including from trial and improvement, May be implied in later work If M0 A0, award SC1 for any one of the following: • (33860 ÷ 4 =) 8465 • (32474 ÷ 4 =) 8118.5 • ((33860 + 32474) ÷ 4 = 66334 ÷ 4 =) 16583.5
(Cost of fuel) 346.5 × 1(.)86	M1	FT 'their number of litres of fuel'
(£)644.49 or 64449(p)	A1	CAO. If units are given, they must be correct
7(b) Alternative method: *(Fuel cost per km) 1(.)86 ÷ 4* *= 46.5 (p/km) or 0.465 (£/km)*	*M1* *A1*	*Allow rounded to (0.)47 or truncated to (0.)46*
(Distance travelled 33860 – 32474 =) 1386 (km)	*B1*	
(Cost of fuel) 1386 × 0.465 or 1386 × 46.5	*M1*	*FT 1386 × 'their derived 46.5' or* *1386 × 'their derived 0.465'* *OR* *FT 'their 1386' × 'their 1(.)86 ÷ 4', including use of 33860, 32474 and 33860 + 32474*
(£)644.49 or 64449(p)	*A1*	*CAO. If units are given, they must be correct*

8(a) (Girls) 4 + 18 + 10 + 5 AND (Boys) 3 + 20 + 11 + 4 'Correct' indicated or implied AND number of girls 37 AND number of boys 38	M2 A1	For M2 allow **an error** in 1 of the 8 values M1 for either (Girls) 4 + 18 + 10 + 5 (=37) or (Boys) 3 + 20 + 11 + 4 (=38) CAO
8(b) (Girls) $\frac{4}{37}$ (× 100) **OR** (Boys) $\frac{3}{38}$ (× 100) 10.8(….%) or 11(%) **AND** 7.8(9…%) or 7.9 (%) or 8(%) Difference 2.9(%)	 M1 A2 A1	FT 'their first values' and 'their 'totals' from (a) If their number of girls = their number of boys then FT for possible first M1 A1 only Do not accept '4 out of 37' or '3 out of 38' Do not award A2 or A1 from incorrect working seen Allow A2 as implied by a final answer in the range 2.8(%) to 3.2(%) from the sight of the appropriate decimals if individual percentages are not seen A1 for any one of the following: • (Girls) 10.8(….%) or 11(%) • (Boys) 7.8(9…%) or 7.9 (%) or 8(%) • (Girls) 0.108… **and** (Boys) 0.078… Only FT from A2 previously awarded Answer space takes precedence Must be given as a percentage to 1 decimal place Do not FT from premature approximation If no marks, from appropriate working award SC1 for working with any one of the following: • (first and last 10 seconds) 9/37 and 7/38 • (last 10 seconds) 5/37 and 4/38 or equivalents as decimals or percentages **OR** SC2 for the respective answers: • (24.3(2…) – 18.4(2...)) 5.9(%) • (13.5(1…) –10.5(2…) = 2.99 =) 3.0 (%)