

GCSE MARKING SCHEME

SUMMER 2018

GCSE (NEW)
MATHEMATICS - NUMERACY
UNIT 1 - INTERMEDIATE TIER
3310U30-1

INTRODUCTION

This marking scheme was used by WJEC for the 2018 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 (NEW)

SUMMER 2018 MARK SCHEME

GCSE Mathematics – Numeracy Unit 1: Intermediate Tier Summer 2018	Mark	Comment
1(a) 57·5 (miles)	B1	
1(b) Method, e.g. 4 × 230, 8 × 115, or equivalent	M1	FT 16 × 'their 57·5'
920 (miles)	A1	Useful FT information: FT Miles
2(a) 2 × 5.60 + 2 × 2.30 (£) 15.80 (£) 4.20	M1 A1 A1	FT 20 – 'their 15.80' correctly evaluated provided M1 awarded Alternative: 20 - 2 × 5.60 - 2 × 2.30

2(b) (Adult extra 10% of £5.60 is £) (0.)56	B1	Ignore units. (£)1(.)12 implies 56(p)
(Adult with extra 10% is £) 6.16	B1	(£)12.32 implies (£)6.16
OR (Adult pays too much by)		FT 'their 56p' provided 10% of £5.60
6.4(0) - 5.6(0) - (0).56		attempted
(Adult pays too much by) 24p or £0.24	B1	CAO. B0 for 48(p) If units are given they must be correct
		Penalise units not given in (OC)W
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.
2(c) Intention to calculate	M1	May be seen in stages
714 000 ×2 ÷ 7		Sight of 2/7 × 714 000 is insufficient for M1, there must be an intention to ÷7 and ×2, e.g. allow from sight of incorrect
204 000 (m ²)	A1	responses 24000, or 2 x 12000 Mark final answer

3(a) Suitable reason, e.g. 'the range is not an average', 'range doesn't take all the goals into consideration', 'doesn't tell you about the number of goals scored', 'because the range is only the difference between the highest and the lowest'	E1	Ignore additional comments made, irrespective of being reasonable or not Do not accept, e.g. 'Different number of games played', 'Wales played more games in 1984', 'average is not relevant', 'Wales scored a different number of goals in the 2 years', 'Wales scored more goals in 1985', 'Wales might have had a different team in 1985', 'because the range is the difference between the highest and the lowest', 'to find the average you find the mean'
3(b)(i) Method to find the mean, e.g. $5 \div 8$ or $8 \div 6$	M1	Accept for 1 year shown, or 1 correct year
Both years correct: 1984 5/8 (goals), 1985 8/6 (goals) AND suitable conclusion e.g. 'yes', 'true', '1985 is better than 1984'	A2	Accept equivalent correct interpretation showing understanding of comparison of the means without showing the fractions Accept 1 remainder 2 for 8/6 Do not ignore further inverse working, e.g. $8 \div 5$ rather than $5 \div 8$ A1 for 1 of their 2 means correct, do not ignore further inverse working Left as operations, i.e. $5 \div 8$ and $8 \div 6$, if no further interpretation, A0 However if further interpretation, e.g. being <1 and >1, or equivalent then award A1 Note: 1984: $(1+1+1+0+0+0+0+2) \div 8$ $(= 5/8 = 0.625 \text{ goals})$ 1985: $(1+1+3+2+1+0) \div 6$ $(= 8/6 = 1.33 \text{ goals})$ Accept rounding or truncation
3(b)(ii) Reason, e.g. 'other teams might have been stronger', 'don't know about injuries', 'home and away goals not considered', 'doesn't consider winning and losing', 'Wales haven't played against the same teams in the 2 years', 'they played different teams', 'there were different players', 'doesn't consider goals against'	E1	Allow, e.g. 'different number of matches' Do not accept, e.g. 'only looked at mean' Allow statement of different • players • number of goals • teams • number of matches

4(a)(i) 10:13	B1	
4(a)(ii) 09:36	B1	
4(b) (Leaves Grainsey at) 13(:)00 or 1p.m. Bus 6 Bus 7 10:20 10:45 10:40 11:30 11:00 12:15 11:20 13:00 11:40 12:20 12:40 13:00	B4	Allow 13:00 p.m. or 1:00 or 1 o'clock B3 for attempt to add 3 hours onto 10:00 (Do not accept 10:00 + 180) OR Listing 9 further times for bus 6 and 4 further times for bus 7 with at most one error in total (FT with that 1 error to check further times) B2 for sight of result (LCM 2 × 2 × 3× 3 × 5 =) 180 (minutes) or 3 hours OR Listing 7 further times for bus 6 and 3 further times for bus 7 with at most one error in total (FT with that 1 error to check further times) OR Listing 5 further times for bus 6
		and 2 further times for bus 7 with no errors. B1 for sight of 20 = 2×2×5 with 45 = 9×5 OR for sight of 20 = 4×5 with 45 = 3×3×5 OR for sight of 20 = 4×5 with 45 = 9×5 OR Listing 3 further times for bus 6 and 2 further times for bus 7 with at most one error in total (FT with that 1 error to check further times) OR Listing 20, 40, 60, AND 45, 90, 135,

5(a)(i) (£) 20	B1	
(£) 30	B1	If B0, B0, award SC1 for (£)30 followed by
()	_	(£)20
		140(
5(a)(ii)		Accept 16 (years) with months left blank
16 (years) 0 (months)	В3	throughout
13 (years) 6 (months)		B2 for (in order)
		16 (years) 0 (months)
		with 13 (years) 5 (months), or
		• 13 (years) 6 (months)
		with 16 (years) 0 (months), or 16 (years) 0 (months)
		with 13½ (years) 0 or 6 (months)
		(Harris 1072 (Jeane) 0 01 0 (Hermine)
		B1 for
		either answer correct in
		appropriate statement
		accept 16 (years) 'blank' (months), or
		13 (years) 5 (months) followed by
		16 (years) 0 (months), or
		• 13½ (years) 0, 6 (months)
		followed by 16 (years) 0 (months)
5(b)(i) 13 (years old)	B1	CAO
F/h//// Ladianta animalian (Vanimina	F4	De ret secret 9/es le l'attraction de
5(b)(ii) Indicates or implies 'Yes' with a reason, e.g.	E1	Do not accept 'Yes, he is the youngest' Accept 'Yes' with a reasonable true
only one young person gets more paid		comparison
towards their mobile phone bill',		If amounts are quoted they must be
'the 13½ year old (only) gets £27.5(0),		correct unless accompanied by a correct
'There are older children that pay less		comparative statement
than Lekan', 'only 3 others pay the same or more',		
'most pay less',		
'only 4 pay more or the same'		
'the amount paid for other 13-year olds		
is less',		
'most parents pay less',		
OR		
Indicates or implies 'No' with a reason,		
e.g.		
'there is no correlation', 'there is no relationship between age		
and amount'		
2 442 (D.	
6. 112 (grams of butter) 98 (grams of flour)	B1 B1	
1704 (millilitres of milk)	В1	
252 (grams of cheese)	B1	

7. 1cm: 50 000cm means	B1	Units given must be correct or measures
1cm is 500 m or 0.5(0) km		clearly used correctly
OR		clearly used correctly
Sight of (48 × 50 000 =) 2 400 000		
		FT incorrect map scale conversion with place value error B0, with FT for possible B1, M1, A0, E1, except no FT with use of 50 000
(48cm route is 0.5x48 =) 24 (km), OR 1cm is 5/16 mile	B1	If map scale conversion is correct then this B1 implies the previous B1 If units are given they must be correct
Route is $5 \times 24 \div 8$ or $48 \times 5 \div 16$ or $24 \div 1.6$	M1	FT 'their 24' or 'their 48 × 0.5'
(=) 15 miles	A1	CAO. Units must be given or implied correctly by comparison with 13 (miles).
		Alternative M and A marks 13 × 8 ÷ 5 M1 (=) 20.8 km A1
Reasonable conclusion, e.g. 'Yes, Macy could push herself to cycle a bit further', 'No, Macy only wants to cycle 13 miles', 'Don't know, could depend on the hills', "no, it is 2 miles longer than Macy can ride'	E1	Depends on at least 2 marks previously awarded including M1 and FT reasonable for 'their number of miles/km'

8(a) (Total area =) 15×15 + 4×5 or 20×4 + 11×15 or 20 × 15 - 11 × 5 or equivalent (Volume = total area) × 0.2	M1 M1	Note: check diagram for the area Accept any correct area calculation Allow for 'their total area' × 0.2 where 'their area' includes a product, or for one rectangular (or square) area × 0.2
(Volume =) 49 (m ³)	A2	FT from 1 measurement error in a sum or difference of two products, i.e. only one measurement incorrect within one product (M0 M1 A2 is possible to award)
		A1 for calculations with evaluated terms as shown (in bold and underlined)
		FT from M1, M0 (area 225+ 20 or 80 + 165 or 300 - 55) 245(m ²),
		OR
		FT from M1, M1: for one area product correctly evaluated within 'their area' AND ×0.2 correctly evaluated
		Accept implied correctly evaluated area product, e.g. 4x5 + 15x15 = 20 + 125
		= 145 With 145 × 0.2 = 29 (m³), award M1, M1, A1 (although 125 is incorrect)
8(b) 2/3 × 6 OR 2/3 × 45 × 45 × 6 or equivalent	M1 m1	Allow sight of 2/3 of 6 or 2/3 of 45 (= 4 × 45 or 30 × 6 or 2/3 × 270) (= 180)
+ 35	m1	Intention to add 35 Depends on M1 only
(£) 215	A1	CAO

9. 49 × 20	M1	
(= £) 980	A1	
% Interest 980 - 400 (×100)	m1	FT 'their 980' provided M1 previously
400		awarded
or <u>980</u> (×100) - 1(×100)		Award m1 for complete method to show
400		what percentage 580 is of 400
145 (%)	A1	
` ,		
10(a) 190°	B1	
10(b) 332°	B1	
10(8) 002		
10(c)(i) 8400 ÷ 200	M1	Or equivalent
42 (population/km²)	A1	CAO
10(-)(") 5 0100 (0 - 1 - 5)	N 4 4	E II and a day of and
10(c)(ii) $5 \times 8400 \div (3 + 4 + 5)$ 3500 (people)	M1 A1	Full method required Accept embedded answer, provided
3500 (people)	AI	clearly Gwyndir
		Cicarry Gwyrian
11(a) 0.02 × 3000 + 3000 (= £3060)	M1	Allow for sight of 3060 (irrespective of
or equivalent		labelling) or for sight of 3120 (simple
		interest)
0.02 × 3060 + 3060	M1	FT 'their 3060', mark is for the method
0.02 × 3000 + 3000	IVII	(= £61.2(0) + £3060)
(£)3121.2(0)	A1	CAO
		Alternative:
		Sight of 1.02 ² × 3000 M1
		1.0404 × 3000 M1
		FT 'their 1.0404' incorrectly evaluated (£)3121.2(0) A1 CAO
		(£)3121.2(0) A1 CAO
		If no marks, award SC1 for (£)2881.2(0)
		(from depreciation)
11(b) 72 ÷ 0.8 or $100 \times 72 \div 80$	M1	Accept on uncumparted accepts at (C) CC
(£) 90	A1	Accept an unsupported answer of (£)90 Allow M1, A1 for (£)90 found from trial &
		improvement

12. (Maximum cup height)12.5 (cm)	B1	For sight of 12.5 and 4.5 (ignoring any least measures given)
(Maximum height of 7 coffee mugs is) 12.5 + 6 x 4.5	M2	FT 'their 12.5' and 'their 4.5' provided in ranges >12 to 12.5 and >4 to 4.5 respectively
(=) 39.5 (cm)	A1	Award M1 only (A0) for 12.5 + 7× 4.5 (A0)
Conclusion or reason, e.g. '(as 39.5 cm > 39 cm) Michelle cannot be certain the mugs will fit'	E1	Depends on at least 2 marks previously awarded FT 'their 39.5' irrespective if <39 or >39
		An unsupported 39.5 is no marks as no working shown
13(a) 20 to 25 minutes	B1	
13(b) 'No' indicated or unambiguously implied, with a reason, e.g. 'only shows data for groups', 'it was in the group 40 to 45 minutes', 'doesn't show how many runners finished in 45 minutes', 'the last 2 runners took between 40 and 45 minutes'	E1	Do not accept any reason implying 'Yes' Allow 'No' with, e.g. 'the graph shows the cumulative frequency not the actual times', 'doesn't show the actual times' Do not accept, e.g. 'it goes to the nearest 5 minutes', 'it shows frequency not times of results', 'it doesn't show how many runners finished between 40 and 45 minutes'. 'because it can be an average'
13(c) 70% (within 30 minutes)' (80% within) 35 (minutes)'	B1 B1	
13(d) Difference 26 - 24.5 to 24.8 Answer in the range 1.2 to 1.5 (minutes), or 1 minute 12 seconds to 1 minute 30 seconds	M1 A1	Do not accept an answer in the correct range from incorrect working Mark final answer If units are given they must be correct

14(a) 25% of 3000 or 0.25 × 3000	M1	
or equivalent		
750 (people)	A1	If no marks, award SC1 for an answer of
		2250 (people)
14(b) Idea to consider fraction or	M1	For example, sight of 10/15 (= 2/3) or 5/15
decimal part between the median & UQ		(= ½)
³ / ₃ × 0.25 × 3000 or equivalent	m1 A1	FT 'their 750' from (a)'
500 (people)	AI	
14(c)		Do not ignore additional incorrect
		statements
	-4	
Indicates or unambiguously implies 'North Entrance' with a suitable reason,	E1	Implies that the majority of people got through quicker at the North Entrance
e.g.		tillough quicker at the North Entrance
'upper quartile is less than for the South		Allow, e.g.
Entrance',		'North Entrance, most people 44 minutes
'3/4 took less than 44 minutes to queue		whilst South it was 60 minutes'
at the North entrance', North as ¾ took		D 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
less than 60 minutes at the South Entrance',		Do not accept indication of 'South Entrance' with a reason based on the
Entrance,		team being slower, e.g.
OR		'time was taken to search of handbags'
Indicates or unambiguously implies		5
'South Entrance' with a suitable reason,		
e.g.		
'25% people in 20 minutes at South entrance compared with 24 minutes at		
the North entrance'		