



GCSE MARKING SCHEME

AUTUMN 2018

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

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 (3310U10-1)

AUTUMN 2018 MARK SCHEME

GCSE Mathematics – Numeracy Unit 1: Foundation Tier	Mark	Comment
1(a)(i) 4035(.00)	B1	Answer may be written on the lines. Answer in the box takes precedence to one on lines. Accept 4,035 Ignore other commas Do not allow 4.035
1(a)(ii) No indicated and correct reason given, e.g. 'It should be four thousand not ten thousand.' 'He rounded it up when it should be rounded down.' 'No, not correct to the nearest ten thousand' 'No, it is less than $\frac{1}{2}$ of 10000' 'No it is (about) 6000 short'	E1	Allow 'It should be five thousand not ten thousand.' 'Much too big' 'Too far away' 'No, it is not near ten thousand' 'No he needs 5965 to reach ten thousand' 'No, because it is 5965 off' 'No, it is nowhere near ten thousand pounds' 'No because it's nearer 5000' No, it's below 5000' 'No, it is under 5 so would round lower' '10000 is not near 4035' 'No, 4035 is not close enough to 10000' Do not allow 'No, the amount is 4035' 'No, the number is below 10000 so is not a good estimate'

1(b)(i) Suitable explanation given, e.g. 'It means that he is in debt (by £21.00).' 'He owes the bank (£21).' The account is overdrawn (by £21) 'He borrowed £21 from the bank' 'He took too much money out of the bank so is in debt'	E1	<u>Allow</u> 'He's used money he hasn't got' 'He used more than what was in his bank' 'He was <u>overdue</u> by £21' 'This means Rob has to pay back the (-)£21' 'It means that that is how much under zero he has.' 'Has withdrawn money out of his account but now has to pay it back' 'Has gone below his balance <u>and has to pay it back</u>' 'He has spent more money than he had in his bank' 'Not enough money to pay' 'he has spent £21 more than he has got' <u>Do not accept</u> 'He has gone below his balance' 'Every time there's a new date the balance is decreasing' 'Money not fully paid' 'Has gone under budget' 'He went over his limit' '21 has been taken out' 'He has nothing in his bank' 'If the balance is a -, it means that all the money in the account has been spent' 'This means he has -21 out of his account' 'He owes 21 to GM Shoes as he had only 6.29 in his account'
1(b)(ii) -21 + 50 or 50 - 21	M1	Clear indication that they are adding 50 to -21 or subtracting 21 from 50
(£)29(.00)	A1	
2(a) FALSE FALSE FALSE TRUE	B2	Award B2 for all correct Award B1 for 3 correct
2(b) 12	B1	
2(c) 93 – 24	M1	Do not award M1 for 93 and 24 without an attempt at subtraction
69	A1	Award M1 A0 for -69
2(d) GD = GF - GA	B1	Answer may be seen on an answer line

3(a) (Wave Bay Hotel) $100 \times 45 + 275$ (Jenkins Hotel) $100 \times 38 + 900$ (£)4775 AND (£)4700 AND Castle View Hotel stated	M1 M1 A2	May be seen in stages Award A1 for either (£)4775 or (£)4700 if at least M1 awarded Note: Only award A1 if both correct answers given and Castle View Hotel is not given ISW for money for flowers
3(a) <i>Alternative method. Working with what is left.</i> (Wave Bay Hotel) $5000 - (100 \times 45 + 275)$ (Jenkins Hotel) $5000 - (100 \times 38 + 900)$ (£)225 AND (£)300 AND (£)430 AND Castle View Hotel stated	M1 M1 A2	May be seen in stages Award A1 for either (£)225 or (£)300 if at least M1 awarded Note: Only award A1 if only (£)225 and (£)300 given whether Castle Hotel is stated or not
Organisation and communication Writing	OC1 W1	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 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.

3(b) (Amount to pay) (£)2400 (10%=) (£)240 (2400 – 240=)(£) 2160 (£)2160 ÷ 20 (£)108	B1 B1 B1 M1 A1	FT 10% of 'their 2400' including use of 3400 for 2400 FT 'their 2400' - 'their 240' correctly evaluated. Including use of 3400 for 2400. Allow this B1 if £1000 taken off here and not at the start. FT 'their 2160' ÷ 20 Example of common incorrect answers: 3400 B0 340 B1 (3400 – 340=) 3060 B1 3060 ÷ 20 M1 (£)153 A1 Example of common incorrect answers: 3400 B0 340 B1 (3400 – 340 - 1000=) 2060 B1 2060 ÷ 20 M1 (£)103 A1 Apply FT as above
3(b) <i>Alternative method</i> (Amount to pay) (£)2400 2400 ÷ 20 (£)120 (10%=) (£)12 (120 – 12=)(£)108	B1 M1 A1 B1 B1	FT if £1000 not taken off. FT 10% of 'their (£)120 Example of common incorrect answers: 3400 B0 3400 ÷ 20 M1 (£)170 A1 (10%) 17 B1 (170 – 17=) (£)153 A1 Apply FT as above

3(c)(i) 5:45pm – 2 hours – 30mins 3:15 (p.m) or 15:15	M1 M1 A1	M marks can be awarded in any order Sight of 3:45 implies M1 FT 'their 3:45' - 30 mins Or Sight of 5:15pm implies M1 FT 'their 5:15' – 2 hours Note: award M2 for 5:45 pm – 2 hours 30 mins Or 5:45 pm – 2 ½ hours Award M1M0 for 5– 2hrs30mins – 45mins However Award M1M1 for 5– 2hrs30mins + 45mins CAO. Do not accept 3:15 a.m or 03:15
3(c)(ii) 17:45	B1	
4(a) 4 (cm), 5 (cm) and (6 (cm) in any order	B1	
4(b) $4 \times 4 + 4 \times 5 + 4 \times 6$ or equivalent 60 (cm) $3 \times 60 \div 2$ or equivalent 90 (p) or £0.9(0)	M1 A1 M1 A1	FT 'their width, height and length' provided 3 values are used FT $1.5 \times$ 'their 60 (cm)' (irrespective if dimensionally incorrect) provided derived from use of 'their 3 values' Depends on both M marks Allow £0.90p
4(b) Alternative method: 4×1.5, 5×1.5 and 6×1.5 6(p), 7.5(p) and 9(p) $4 \times (6 + 7.5 + 9)$ 90(p) or £0.9(0)	M1 A1 M1 A1	FT 'their width, height and length' provided 3 values are used FT use of 'their 6, 7.5 and 9' Allow £0.90p Accept FT rounded or truncated to pence, may be expressed in £s

5(a) Reflex	B1	
5(b) For 100° (± 2°) in the correct place For 210° (± 2°) in the appropriate place (at the end of 'their 6cm' line) For 6cm (± 2mm) AND 5cm (± 2mm) lines in the correct place (with 6cm 1 st and 5cm 2 nd)	B1 B1 B1	Measurements must be seen in the correct order
5(c) (Did not complete=) $27 \div 9 \times 2$ 6 (Did complete = $27 - 6 =$) 21	M1 A1 A1	FT 'their 6' provided M1 awarded Note: Award M1 A0 A0 for 6/27 Award M1 A1 A0 for 21/27
5(c) <i>Alternative method</i> (<i>Fraction that did complete =</i>) 7/9 $27 \div 9 \times 7$ 21	B1 M1 A1	<i>May be implied by M1</i>

6(a)(i) 3	B1																	
6(a)(ii) 2	B1																	
6(b) Idea that 5 books weigh 1750 (g) 350 (g)	B1 B1	ISW																
6(c)(i) $10x = 2x + 3200$ or $8x = 3200$ or $x = 3200 \div 8$ or equivalent	B1	ISW, although allow $x = 8/3200$ if followed by $x = 400$. B0 for $x = 8/3200$ or '400' alone Allow $x = 400$ Accept inclusion of unit 'g' throughout Do not accept $x = 1/8$ of 3200																
6(c)(ii) $12 \times 3200 \div (10 - 2)$ or equivalent shown in stages 4800 (g)	M1 A1	FT from 'their first equation' in the form $ax = bx + c$																
7(a) Method of comparison, e.g. per 1 tile or for 5 tiles, or similar Correctly evaluated comparison for 2 of the 3 packages	M1 A1	Needs to show attempt to compare at least 2 of the 3 packages, e.g. Comparing 100 tiles: 100 tiles for £29 with 40 tiles: $\pounds 11.20 \times 2.5 (= \pounds 28)$, or 25 tiles: $\pounds 7.50 \times 4 (= \pounds 30)$ Ignore incorrect units <table border="1"><thead><tr><th>Number of tiles</th><th>per 1 tile</th><th>per 5 tiles</th><th>per 200 tiles</th></tr></thead><tbody><tr><td>25</td><td>30 p</td><td>£1.50</td><td>£60</td></tr><tr><td>40</td><td>28 p</td><td>£1.40</td><td>£56</td></tr><tr><td>100</td><td>29 p</td><td>£1.45</td><td>£58</td></tr></tbody></table>	Number of tiles	per 1 tile	per 5 tiles	per 200 tiles	25	30 p	£1.50	£60	40	28 p	£1.40	£56	100	29 p	£1.45	£58
Number of tiles	per 1 tile	per 5 tiles	per 200 tiles															
25	30 p	£1.50	£60															
40	28 p	£1.40	£56															
100	29 p	£1.45	£58															
Correctly evaluated comparison for all packages, may be different methods for different stages	A1	If units are given they must be correct Consistent units that are not obviously incorrect are required, or allow no units given Depends on at least M1, A1 previously awarded																
Conclusion '(box of) 40 (middle) is best value for money'	E1	FT provided all three boxes are appropriately compared (all three or as two pairs) and at least M1 A1 previously awarded Sight of looking at the difference in costs is likely to be M0 A0 A0																
7(b) Selecting the 3 boxes: A (Square) B (Rhombus) D (Right-angled triangle)	B2	In any order B1 for selecting 2 of the 3 correct boxes B0 for selecting more than 3 boxes																

8(a) 10(%) and 40(%) in either order 5(%)	B1 B1	
8(b) A suitable explanation based on any one of: - no correlation - no data for towns above 7000 - small sample e.g. 'no correlation', 'no pattern (to the results)', 'no relationship (between the number of people and the percentage of rubbish)'	E1	Accept, e.g. 'outside the range of data collected', 'only data between 2000 to 7000 people', 'results vary too much', 'the data stops at 7000' Allow, e.g. 'not enough data', 'no data for a town this big', 'was only done for first week in July', 'there are only 8 towns' Do not accept, e.g. 'no town with 9000 people', 'no data at 9000 people', 'it is off the graph', 'graph doesn't reach 9000 people', 'not suitable', 'may not be accurate', 'unpredictable', 'no data for 8000', 'each town is different', 'no data for a town of this size', '9000 is not a small town'
9(a)(i) Listing common multiples showing at least: 42, 84 and 24, 48, 72 OR $2 \times 3 \times 7 (=42)$ AND $2 \times 2 \times 2 \times 3 (=24)$ Complete listing: 42, 84, 126, 168 and 24, 48, 72, 96, 120, 144, 168 OR LCM $2 \times 2 \times 2 \times 3 \times 7 (= 168)$ (= 4×42 and 7×24)	B1 B1	Accept $6 \times 7 (=42)$ AND $4 \times 6 (=24)$, i.e. must have sight of factors which could lead to LCM being given, so do not accept e.g. 2×21 and 2×12 without further breakdown Accept $6 \times 4 \times 7$ or $6 \times 2 \times 2 \times 7$ If no marks, award SC1 for sight of $4 \times 42 = 168$ AND $7 \times 24 = 168$ (as least not shown), or indication that number of buttons and pins both 168
9(a)(ii) 168	B1	CAO

9(b)(i) (Sticky tape needed is) $2.5 \times 4 \times 42$ or $2.5 \times 7 \times 24$ or 2.5×168 $(= 420 \text{ cm})$ (Number of rolls of sticky tape is) $(2.5 \times 4 \times 42) \div 60$ or $(2.5 \times 7 \times 24) \div 60$ or $(2.5 \times 168) \div 60$ or $420 \div 60$ 7 (rolls needed)	M1 M1 A1	FT 'their 168' from (a)(ii) FT 'their 168' from (a)(ii) Allow sight of repeated addition of 60s, need to show 60, 120, 180, 240, 300 Only FT if number of rolls is >1 Must be rounded up to a whole number of rolls Allow 2.5cm rounded to 2cm or 3cm, FT as with use of 2.5cm <table border="1"> <tr> <th>Use of 2cm</th><th>Use of 3cm</th><th></th></tr> <tr> <td>2×168 $(= 336 \text{ cm})$</td><td>3×168 $(= 504 \text{ cm})$</td><td>M1</td></tr> <tr> <td>$336 \div 60$</td><td>$504 \div 60$</td><td>M1</td></tr> <tr> <td>6 (rolls) (5.6 not accepted)</td><td></td><td>A0</td></tr> <tr> <td></td><td>8 or 9 (rolls) (8.4 not accepted)</td><td>A1</td></tr> </table> (As 3cm is already rounded up, allow number of rolls rounded down)	Use of 2cm	Use of 3cm		2×168 $(= 336 \text{ cm})$	3×168 $(= 504 \text{ cm})$	M1	$336 \div 60$	$504 \div 60$	M1	6 (rolls) (5.6 not accepted)		A0		8 or 9 (rolls) (8.4 not accepted)	A1
Use of 2cm	Use of 3cm																
2×168 $(= 336 \text{ cm})$	3×168 $(= 504 \text{ cm})$	M1															
$336 \div 60$	$504 \div 60$	M1															
6 (rolls) (5.6 not accepted)		A0															
	8 or 9 (rolls) (8.4 not accepted)	A1															
9(b)(i) Alternative method: $60 \div 2.5$ $(= 24 \text{ badges per roll of tape})$ (Number of rolls of sticky tape is) $168 \div (60 \div 2.5)$ or $168 \div 24$ 7 (rolls needed)	M1 M1 A1	FT 'their 168' from (a)(ii) FT 'their 168' from (a)(ii) Only FT if number of rolls is >1 Must be rounded up to a whole number of rolls Allow 2.5cm rounded to 2cm or 3cm, FT as with use of 2.5cm <table border="1"> <tr> <th>Use of 2cm</th><th>Use of 3cm</th><th></th></tr> <tr> <td>$60 \div 2$ $(= 30)$</td><td>$60 \div 3$ $(= 20)$</td><td>M1</td></tr> <tr> <td>$168 \div 30$</td><td>$168 \div 20$</td><td>M1</td></tr> <tr> <td>6 (rolls) (5.6 rolls)</td><td></td><td>A0</td></tr> <tr> <td></td><td>8 or 9 (rolls) (8.4 not accepted)</td><td>A1</td></tr> </table> (As 3cm is already rounded up, allow number of rolls rounded down)	Use of 2cm	Use of 3cm		$60 \div 2$ $(= 30)$	$60 \div 3$ $(= 20)$	M1	$168 \div 30$	$168 \div 20$	M1	6 (rolls) (5.6 rolls)		A0		8 or 9 (rolls) (8.4 not accepted)	A1
Use of 2cm	Use of 3cm																
$60 \div 2$ $(= 30)$	$60 \div 3$ $(= 20)$	M1															
$168 \div 30$	$168 \div 20$	M1															
6 (rolls) (5.6 rolls)		A0															
	8 or 9 (rolls) (8.4 not accepted)	A1															
9(b)(ii) Takings $(50(p) \times 168=)$ $(£)84$ or $8400(p)$ Costs $4 \times (£) 2.50 + 7 \times (£) 1.10$ $+ 7 \times 52(p)$ $(=£10 + £7.70 + £3.64 =)$ $(£) 21.34$ Profit $(£84 - £21.34 =)$ $(£) 62.66$	B1 M1 M1 A1 B1	FT 'their 168' from (a)(ii) FT from (b)(i) 'their number of rolls' $\times$ 52p provided >1 If units are given they must be correct FT $£17.70 + 52p \times$ 'their number of rolls', for any number of rolls FT 'their 84' provided $50(p) \times$ 'their 168' attempted and 'their (£)21.34' provided at least M1 previously awarded															