



GCSE MARKING SCHEME

AUTUMN 2018

**GCSE
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 (3310U30-1)

AUTUMN 2018 MARK SCHEME

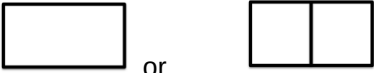
GCSE Mathematics – Numeracy Unit 1: Intermediate Tier	Mark	Comment
1(a) 4 (cm), 5 (cm) and 6 (cm) in any order	B1	
1(b) $4 \times 4 + 4 \times 5 + 4 \times 6$ or equivalent 60 (cm) $3 \times 60 \div 2$ or equivalent 90 (p) or £0.9(0)	M1 A1 M1 A1	FT 'their width, height and length' provided 3 values are 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
1(b) <i>Alternative method:</i> 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
2(a)(i) 3	B1	
2(a)(ii) 2	B1	
2(b) Idea that 5 books weigh 1750 (g) 350 (g)	B1 B1	ISW
2(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
2(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 $ax = bx + c$

3(a) Method of comparison, e.g. per 1 tile or for 5 tiles, or similar

3(b) Working with 3m by 4m: 30 tiles by 20 tiles, or 15 tiles by 40 tiles 600 (tiles)	M2 A1	Ignore further inappropriate working M1 clearly showing (accepting shown on a diagram) any one of $300 \div 10 = 30$ $300 \div 20 = 15$ $400 \div 10 = 40$ $400 \div 20 = 20$ CAO If no marks, award SC1 for a misuse of units with - division of 10 and 20 by 3 and 4 in either order, or 10×20 divided by 3×4
3(b) Alternative method: $12 (m^2) \div 0.02 (m^2)$ or $120000 (cm^2) \div 200 (cm^2)$ or $\frac{300 \times 400}{10 \times 20}$ 600 (tiles)	M2 A1	Change areas to consistent units M1 for $10 \times 20 = 200$ AND $3(00) \times 4(00) = 12(0000)$ or $3 \times 4 = 12$ AND $0.1 \times 0.2 = 0.02$ CAO
3(c) 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
4(a)(i) 10(%) and 40(%) in either order 5(%)	B1 B1	
4(a)(ii) 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'

[illegible]

8(b) 'No' selected or unambiguously implied with a reason, e.g. 'insufficient data', 'only asked 14 people', 'a biased group of friends', 'she only asked her friends' 'because she has not asked a random sample (of people in Wales).'	E1	Do not accept, e.g. 'No' with 'most people own less than 12 pairs of shoes', 'she only asked 12 people' 'she has not asked which age group', 'because she could have asked a particular sex or age' Allow, e.g. 'only x people were asked' where $x = 13$ or $x = 15$ only
8(c) Shows more than 3 groups between 1 and 18, which are: • non-overlapping • exhaustive groups	B2	Allow if the final groups goes to beyond 18 pairs Do not count 'none' or '0' as a group Groups do not need to be of equal width B1 for more than 3 groups between 1 and 18 meeting 1 of the 2 bullet point conditions Do not accept, e.g. • 'men, women, children' or • sizes listed without groups for the number of pairs Ignore inclusion of number of people shown in their groups
9(a) (Jade saves each week) 72×0.21 or $7.2(0) + 7.2(0) + 0.72$ (= £ 15.12) (Total savings 15.12) $\times 20$ (£) 302.4(0) (Jade's father pays £350 – 302.40 =) (£) 47.6(0)	M1 M1 A1 B1	Do not accept '1512' without indication of pence, unless used correctly in working These 2 M marks can be awarded in either order, i.e. 72×20 (=1440), followed by $\times 0.21$ CAO FT 'their £302.40' provided • a percentage calculation using 72 has been involved AND • provided their answer is $< (£) 350$
9(b)(i) $65\,000\text{ cm}^3$	B1	
9(b)(ii) $100 - \frac{3}{25} \times 100$ or $\frac{(25-3)}{25} \times 100$ 88(%)	M1 A1	Or equivalent Allow M1 for 88/100 If no marks, award SC1 for an answer of or sight of 12(%) provided it is not from incorrect working
9(b)(iii) $abc + \pi a^2c$	B1	

9(c) $35 \times 9 \div 45$ or $35 \div 5$ or equivalent 7 (cm) or 70 mm	M1 A1	Allow with incorrect place value from conversion of units CAO. Do not accept an answer of: 70 without units (mm) 7 or 70 with incorrect units
10(a)  in any orientation	B1	Allow intention of straight lines and right angles Do not accept if clearly two parallelograms attached rather than rectangles If the roof is split into two rectangles, they must meet along one side and intention must be to draw two identical rectangles (or squares)
10(b) Sight of any of the following: $4.2 \times 50000(\text{cm})$ 210 000 $4.2 \times 500 (\text{m})$ 1 cm = 0.5 km 2cm = 1 km - an answer to a product involving $4.2 \times \dots$ with leading digits '21' $210\,000 (\text{cm}) \div 100 \div 1000$ or 4.2×0.5 or equivalent calculation that would lead to a correct answer (2.1km) 2.1 (km)	B1 M1 A1	Ignore inclusion of incorrect units, allow intention of $\times 4.2$ by 50000 given, i.e. allow if leading digits '21' seen FT 'their 4.2×50000' $\div 100 \div 1000$ evaluated incorrectly CAO
10(c) Correct pair of arcs (or arc) cutting the road appropriately Correct use of these arc intersections to create a pair of intersecting arcs Correct placement of the new turbine shown Correct evaluation of appropriate measurement $\div 2$ 3.5 (km) to 3.7(km)	B1 B1 B1 B1	<u>Tolerance of ± 2 mm throughout</u> <u>Alternative for 1st two B1s:</u> B2 for arcs towards drawing a kite, e.g. from B and C with radii AB and AC respectively (no B1 possible) Allow this mark if arcs not shown, or spurious arcs seen. Allow for sight of intersection of a straight line with the road If B0, B0, B0 award SC1 for correct construction with arcs shown for the perpendicular bisector of the Bryn to Cwm road, then FT for possible final B1 Allow this mark if arcs not shown, or spurious arcs seen. (Note: if perpendicular bisector is drawn the final distance is 3.3 km to 3.5 km)

11(a) Uniform scale from at least 5 (seconds) to at least 65 (seconds), AND time label	B1	Accept 'seconds' as the time label, do not accept if only attached to values on the scale																
Correct format of a box-and-whisker	B1	Do not ignore additional lines drawn End stopper lines omitted can be ignored																
Showing least time 5 seconds	B1	FT for unambiguous indications of the following: On the graph paper																
Showing UQ 55 seconds	B1	On the graph paper																
Correct plotting upper end whisker at 65 seconds, LQ at 23 seconds AND median at 45 seconds	B1	On the graph paper																
11(b) 0.75×240 or equivalent 180 (text messages)	M1 A1	Allow sight of '75% of 240' If no marks, award SC1 for an answer of 60 (text messages)																
12(a) $(96 \div 8 =) 12$ or $96 \div 12 = 8$ or $8 \times 12 = 96$	B1	May be implied by consistent position pattern +12 indicated																
<table border="1"><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr><tr><td>6</td><td>18</td><td>30</td><td>42</td><td>54</td><td>66</td><td>78</td><td>90</td></tr></table>	1	2	3	4	5	6	7	8	6	18	30	42	54	66	78	90	B1	CAO Sight of 12 for voucher 2 with no further working or entries is B0, B0
1	2	3	4	5	6	7	8											
6	18	30	42	54	66	78	90											
12(b) $100 \times 120 \div 80$ or equivalent (£) 150	M1 A1																	