GCSE MARKING SCHEME

SUMMER 2016

GCSE MATHEMATICS UNITISED UNIT 3
FOUNDATION TIER

4353/01

INTRODUCTION

This marking scheme was used by WJEC for the 2016 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.

GCSE Mathematics - Unitised Unit 3 Foundation Tier
Summer 2016 Mark Scheme

Summer 2016 Unitised Unit 3 Foundation Tier	✓	Mark	Comments
1. (Able to speak Welsh) 562 000 (Not able to speak Welsh) 2 394 000		B1 B1	
To be viewed with diagram. 2. (a) (volume=) 11 cm^3		 B1 U1	
2. (b) evidence of counting squares (11+11+4+5+9=) 40 (cm^2)		M1 A1	Must consider more than front surface. M0 for 11.
3a. (£) 25.74 (£)7.2(0) (£)8.75	✓ ✓ ✓	B1 B1 B1	 FT (£)41.69 –('their (£) 25.74'+'their (£)7.2(0)')
3b. (£)8.31		B1	
Ribbon marked 3(c)i and 3(c)ii. 3c.(i) (£)4.29		B1	
3c. (ii) (£)4.29 − (£) 36.50/10 (£)0.64 or 64(p)		M1 A1	FT 'their (£)4.29' C.A.O SC1 (£)4.29×10 – (£)36.50 = (£)6.40
To be viewed with diagram. 4. (a) (i) A and G		 B1	
(a) (ii) D and E		B1	
(a) (iii) A, C, E, G and 14(cm)		B2	B1 for any three letters correct AND 14(cm) identified OR all four correct without correct perimeter.
4 (b) enlarged version of rectangle C drawn.		B1	
5. 200÷12 (=16.666…) 16(full boxes) 200 − 16×12 (= 200 − 192) 8	✓ ✓ ✓ ✓	M1 A1 M1 A1	Accept alternative methods eg. Repeated subtraction. FT 'their 16' provided less than 16.
6 (drop in temperature =) 11(^oC) (temperature at top =) −3 (^oC)		B1 B1	Or sight of −11 FT 'their 11' provided the answer is negative
7. Use of 1000ml = 1 litre ('Number of cups sold' =) 4 ×3×8 or $\frac{8\times3000}{250}$ or equivalent (=96 cups) ('Total sales' =) 96 × 75(p) (=£72) ('Total expenditure' =) 8×(£)3·65 + ((£)2·50 (=£31·70) (Profit = 'Total sales' − 'Total expenditure' = £72− £31·70 =) (£)40·3(0) QWC: Look for • correct units used i.e. ml and l, £ and p. • spelling in at least 1 statement/sentence • clarity of text explanations QWC2: Candidates will be expected to • present work clearly, with words or quantities shown for clarity of process or steps AND • make few if any mistakes in mathematical form, spelling, punctuation and grammar in their answer QWC1: Candidates will be expected to • present work clearly, with words or quantities shown for clarity of process or steps OR • make few if any mistakes in mathematical form, spelling, punctuation and grammar in their answer	✓ ✓ ✓ ✓ ✓ ✓ ✓	B1 B1 B1 B1 B1 QWC 2	May be implied in further work. FT 'their 4' or 'their 3000'. FT 'their derived 96'. FT 'their derived 72' and 'their derived (£) 31·70'. QWC2 Presents material in a coherent and logical manner, using acceptable mathematical form, and with few if any errors in spelling, punctuation and grammar. QWC1 Presents material in a coherent and logical manner but with some errors in use of mathematical form, spelling, punctuation or grammar. OR evident weaknesses in organisation of material but using acceptable mathematical form, with few if any errors in spelling, punctuation and grammar. QWC0 Evident weaknesses in organisation of material, and errors in use of mathematical form, spelling, punctuation or grammar.

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To be viewed with pie chart. 8. 12a-12 films, PG- 6films, U- 2 films, 18- 4 films.  	✓ ✓ ✓ ✓	B2 B2	B1 for any two or three correct May be implied from pictogram. FT number of films B1 for any two or three correct.
To be viewed with table. 9. 9 × (£)7.68 4 × 1.5 × (£)7.68 or 4 × (£)11.52 Both (£)69.12 and (£)46.08 (total earnings=)(£)115.20	✓ ✓ ✓ ✓	B1 B1 B1 B1	 FT 'their 9', 'their 4' or 'their (£) 11.52'. FT from 'their (£)69·12' and 'their (£)46·08' provided at least one of the first two B1 marks awarded.
10. **Use Overlay.** (a) ZY=6·8 ± 2mm XYZ = 55° ± 2° Closed triangle with accurate length or angle.		 B1 B1 B1	
10. **Use Overlay.** (b) Intersecting arcs, radius 8cm, drawn from A and B. Completed triangle with vertex at point of intersection of arcs.		M1 A1	Accept two 60° constructions with appropriate arcs and a completed triangle.
11.(a) (i) $x = 4$, $y = 6$		B1	Accept embedded answers
11. (a) (ii) (3×8−2×3=) 18		B1	
11. (a) (iii) (3×3−2×8=) −7		B1	
11. (b) Correct substitution with at least one correct calculation. −30		B1 B1	B1 for 2×½=1 or (−9 − 'their' 2×½) correctly calculated or B1 for one correct calculation following expansion of brackets with correct substitution of a= −9 and b = ½ .
12. (a) 1 , 2, 3, 5, 5,		B3	In any order Median 3(kg) B1 Mode 5(kg) B1 Range 4(kg) B1 An answer of 1, -, 3, 5, 5, scores B2 for a correct median, mode and range but incomplete answer.
12.(b) Method of trial and improvement. Two 3kg bags and three 8kg bags		M1 A1	Eg. 1 × 3kg + 2 × 8kg = 19kg. 19 ÷ 3 ≠ 6. 2 × 3kg + 1 × 8kg = 14kg. 14 ÷ 3 ≠ 6. 2 × 3kg + 3 × 8kg = 30kg. 30 ÷ 5 = 6. If no marks awarded, SC1 for 2n (3kg) and 3n (8kg) for n≥2.
Use overlay. **Ribbon marked with 13b. Viewed with graph.** 13.(a) All points plotted correctly.		B2	B1 for 3, 4 or 5 points plotted correctly, not joined, **OR** B1 for all points plotted correctly but joined.
Ribbon marked with 13(a) 13. (b) Positive.		B1	
Viewed with graph 13(a) 13. (c) Valid reason e.g. "The 60-mile ride could have been over flat roads whereas the 52-mile ride could have been uphill.", or "The wind could have helped on the 60-mile ride.", or "The cyclist may have ridden more slowly on the 60-mile ride", or "The weather was hotter on the 52-mile ride".		E1	
14.(a) 0·6 (miles)		B1	
14.(b) 8 (mins)		B1	
14.(c) 08:40.		B1	
Use overlay. To be viewed with graph. 14. (d) line drawn from (08:00,0) through (08:35, 2·6 ± 0.05) A statement that she arrives after 09:00		B1 B1	B1 for a line drawn from (08:00,0) through (08:35, 2·6 ± 0.05) FT a statement consistent with the reading of the time shown on their graph (or their graph continued) at 4.6 miles

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15. (a)Volume of lime = (4/5 × 200 =) 160 Volume of cranberry = (4/5 × 300 =) 240 160:240:400 or 2:3:5 or equivalent.		B1 B1 B1	This may be seen in their final answer. FT 'their 160' and 'their 240' provided they add to 'their lemonade' and 'their lime' $\leq$ 'their cranberry' Correct answer implies all 3 marks.
15. (b) (1 part =) (£)84.80 ÷ 8 (£)53 **AND** (£)31.8(0)		M1 A1	
16. (a) $x + 5 = 18$ OR $x/6 = 13/6$ $x = 13$		B1 B1	FT until 2nd error. Accept embedded answers.
16. (b) $10x - 15 - 8x = 10$ $10x - 8x = 10 + 15$ $x = 25/2$ or 12·5		B1 B1 B1	FT until 2nd error.
17. 3·66		B2	B1 for 3·6(5930571) or 3.7.
18. 360 ÷ 24 OR equivalent work involving the internal angle. = 15 (sides)		M1 A1	
19. **Use overlay.** (a) Points plotted at mid-points of groups and straight lines connecting the points.		B2	B1 for at least 4 points plotted and joined correctly **OR** for all points plotted correctly but not joined. Accept intention of straight lines. Ignore any lines outside the first and last points.
19. **To be viewed with frequency table.** (b) $30 \leq x < 40$		B1	