



GCSE MARKING SCHEME

AUTUMN 2016

**MATHEMATICS (NEW)
UNIT 1 - INTERMEDIATE TIER**

3300U30-1

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 Unit 1 : Intermediate Tier Autumn 2016		✓	Mark	Comment
1.(a)	0.28 or equivalent e.g. 28/100		B1	Allow .28.
1.(b)	6.35		B1	
1.(c)	(27 – 16 =) 11		B2	B1 for sight of 27 OR 16.
1.(d)	<u>Correctly</u> using a common denominator 3/10 OR 15/50 OR 0.3 or equivalent.		M1 A1	M1 for 9/10 – 6/10 OR 45/50 – 30/50 OR 0.9 – 0.6 OR equivalent Mark final answer.
2.	TRUE TRUE FALSE FALSE TRUE		B3	B3 for 4 or 5 correct. B2 for 3 correct. B1 for 2 correct.
3.	Blue 16 Yellow 11 Red 4		B3	<i>Note Check for the required conditions being met and not the individual numbers. Required conditions are: 'B = Y + 5', 'B = 4R' and 'B + Y + R = 31'. A condition must be met using non-negative integers, otherwise B0. B3 all three conditions correct. B2 for two conditions correct. B1 for one condition correct. Answer space answers take precedence. If answer spaces are left blank allow <u>unambiguous</u> indication of their answers. A number must be given for 'Blue', else B0. Blank spaces for 'Yellow' and 'Red' to be taken as 0 unless <u>unambiguously</u> indicated elsewhere.</i>
4.(a)	5 -2		B2	B1 for 5. B1 F.T. for 'their 5' – 7 if negative.
4.(b)	7g – 2f		B2	Must be an expression for B2. B1 for sight of (+)7g OR – 2f. B1 for 7g + – 2f. Mark final answer.
4.(c)	For sight of 22 = 4 + 3K OR 18 = 3K OR $\frac{22-4}{3}$ (=K) (K=) 6		B1 B1	'2 × 11' must be shown to be 22 and used at some stage. An answer of 6 gains both B1 marks. Allow an embedded answer e.g. 2×11 = 4 + 3 ×6 gains B2. BUT 22 = 4 + 18 alone is B0. B1B0 for 18/3 as a final answer.
Ribbon marking for 5(a), 5(b) and 5(c).			B1	All six entries correct.
5.(a)	(9) 10 (11) 12 13 (6) 7 (8) 9 10 (3) (4) (5) (6) (7) (1) (2) (3) (4)			
Ribbon marking for 5(a), 5(b) and 5(c).			B2	F.T. 'their fully completed table'. Penalise –1 for <u>only</u> words (5 out of 12) or <u>only</u> ratio (5:12). B1 for x/12 if x < 12. B1 for 5/y if y > 5.
5.(b)	$\frac{5}{12}$			
Ribbon marking for 5(a), 5(b) and 5(c).			M1 A1	F.T. 'their 5/12' (including e.g. ½, 50%, 50-50, evens) 25/60 OR 25:60 gets M1A0. 25 out of 60 gets M1A1.
5.(c)	$\frac{5}{12} \times 60$ = 25			

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6	(BD or AE) $\times 9 = 45$ OR (BD or AE $=$) 45/9	✓	M1	Accept any unambiguous reference to or notation for BD and AE. Allow use of 'height' or 'width'. May be seen on the diagram.
	(BD or AE $=$) 5(cm)	✓	A1	
	(CD $=$) 6(cm)	✓	B1	May be seen on the diagram.
	(Area of triangle $=$) $\frac{5 \times 6}{2}$	✓	M1	F.T. 'their 5' provided it clearly represents BD. F.T. 'their 6' provided it clearly represents CD.
	$= 15(\text{cm}^2)$	✓	A1	No marks for an unsupported 15 BUT 15cm^2 gains all 5 marks.
				<u>Alternative method.</u>
				$9 \times (\text{BD or AE}) = 45$ OR (BD or AE $=$) 45/9 M1
				(BD or AE) $= 5(\text{cm})$ A1
				(Area of trapezium $=$) $\frac{9 + 15}{2} \times 5$ M1
				(F.T. 'their 5') $= 60(\text{cm}^2)$ A1
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 explanation and working in a way that is clear and logical
	Accuracy of writing.	✓	W1	For W1, candidates will be expected to:
7.(a)	(w $=$) 50		B1	Accept embedded answer. Mark final answer.
	7.(b)		B1	Accept embedded answer. Mark final answer.
	(x $=$) 6			(x $=$) 42/7 is B0.
7.(c)				To gain the first two B1 marks there must be an equation.
	$13y - 9y = 27 + 5$		B1	Accept embedded answer. F.T. until 2 nd error.
	$4y = 32$		B1	
	$y = 8$		B1	32/4 not accepted as final answer. If FT leads to a whole number answer, it must be shown as a whole number. Otherwise accept a fraction. Mark final answer.

GCSE MATHEMATICS Unit 1 : Intermediate Tier Autumn 2016	✓	Mark	Comment
15. (Perimeter of square $\Rightarrow$) $4 \times (2x + 3y) = 62$ (Perimeter of octagon $\Rightarrow$) $8 \times (x + 2y) = 72$ Correct method to solve simultaneous equations, as far as attempt at subtraction $y = 2.5$ $x = 4$	✓ ✓ ✓ ✓ ✓	B1 B1 M1 A1 A1	Sight of $8x + 12y = 62$ or equivalent e.g. $2x + 3y = 15.5$ Sight of $8x + 16y = 72$ or equivalent e.g. $x + 2y = 9$ F.T. 'their equations'. Allow 1 'slip', if multiplication used, but not in 'equated variable' for M1 <u>only</u> . F.T. from their 1 st variable. (Substitution in any relevant equation.)
Ribbon marking for 16(a) and 16(b). 16.(a) 0.3 on 'Hereford' branch. $0.7 \times P(\text{Yes}) = 0.42$ $P(\text{Yes}) = 0.6$ 0.6, 0.4, 0.6 and 0.4 correctly placed.	✓ ✓ ✓ ✓	B1 M1 A1 A1	Allow their notation for P(Yes). F.T. 'their P(Yes)', if between 0 and 1 but not 0.5.
Ribbon marking for 16(a) and 16(b). 16(b) 0.3×0.4 $= 0.12$		M1 A1	F.T. 'their values' if both between 0 and 1.
17. $4n - 23 > n$ or $n < 4n - 23$ or equivalent. (least number of marbles $\Rightarrow$) 8	✓✓ ✓✓	B2 B2	B1 for $4n \pm \dots > n$ OR B1 for $4n - 23 > an + b$ $a \neq 0$. OR B1 for $4n - 23 \geq n$. B0 for $4n - 23 < n$ F.T. from 'their <u>inequality</u> ', if of equivalent difficulty. (e.g. $4n - 23 > n + 23$ giving an answer of 16) B1 for sight of $n > \frac{23}{3}$ or equivalent. (With similar F.T. answer e.g. $n > 46/3$ from above example of $4n - 23 > n + 23$) OR allow B1 for $n > 7$ OR $n \geq 8$ (With similar F.T. answer e.g. $n > 15$ from above example of $4n - 23 > n + 23$)