



GCSE MARKING SCHEME

JANUARY 2016


**MATHEMATICS UNITISED - UNIT 1
FOUNDATION TIER
4351/01**

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.

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1(a). 60850 (b) 61000 (c) $\frac{60850}{5000}$ $= 12(\cdot 17)$ 13 journeys.	B1 B1 M1 A1 A1 5	Accept 'Sixty one thousand' in words. Allow 61000 / 5000. F.T. 'their answer to (a) or (b)'. M1 for continuous addition of 5000 aiming for at least 60000. (Or continuous addition of 5 aiming for at least 60 OR $60 \div 5$). Similar if following through 'their answer to (a) or (b)'. F.T. rounding up if M1 awarded. ISW if they double their answer (i.e. they treat return of empty trailer as a journey).
2(a) (i) 80 (ii) 70 (iii) 25 (b) Wednesday (c) (i) 30 (ii)  (d) 5	B1 B1 B1 B1 B1 B1 7	F.T. 'their (i)' – 55 provided a +ve value. F.T. 'their 30' only if a multiple of 5. Do not accept 'disjointed' symbols.
3 (a) Answer between 72 and 78 inclusive. (b) 36 (c) 4 OR 0.04 cm. m.	B1 B1 B1 U1 4	Must be consistent with numerical value. (e.g. 4m is B1U0, 0.04cm is B1U0) Any other numerical value B0U0.
4(a) (i) $40 \times (\pounds)8$ $= (\pounds)320$ (ii) $(\pounds)30$ (b) Correct strategy. $\frac{200 - 80}{15}$ $= 8$ (people)	M1 A1 B1 S1 M1 A1 6	M0 if any addition to or subtraction from $40 \times (\pounds)8$. F.T. $\pounds 350$ – 'their (i)'. Attempt at $n \times 15 + 80$ with $n < 10$. M1 implies S1. Any unambiguous embedded answer of 8 gains all three marks.
5. Finding (75%), 80% and 70% OR 0.75, 0.8 and (0.7) OR $\frac{75}{100}$, $\frac{80}{100}$ and $\frac{70}{100}$ OR three correct calculations for a common amount AND clearly stating that Marek was the person who put most leaflets in the envelopes.	B3 3	All correct decimals, OR all correct % OR all correct fractions <u>with a common denominator</u> OR correct work using a common amount of leaflets OR a valid combination that allows comparison AND 'Marek'. B2 for above but 'Marek' not stated OR B2 for having only two correct values and one incorrect value that can be compared, <u>with a correct</u> F.T. name. B1 for having only two correct values that can be compared (with an <u>incorrect</u> name or no name). B1 for unsupported 'Marek'.

<p align="center">January 2016 UNIT 1 Foundation</p>	<p align="center">Mark</p>	<p align="center">FINAL MARK SCHEME Comments (Page 2)</p>																												
<p>6. (Area =) $360 \text{ (m}^2\text{)}$ (Cost of concrete =) (£)2880</p> <p>(Perimeter =) 78 (m) (Cost of fence =) (£)390</p> <p>(Cost of posts =) (£)260</p> <p>(Total cost =) (£)3530</p> <p>Look for</p> <ul style="list-style-type: none"> • spelling • clarity of text explanations • the use of notation (watch for the use of ‘=’, ‘×’ and being appropriate) <p>QWC2: Candidates will be expected to</p> <ul style="list-style-type: none"> • present work clearly, with words explaining process or steps <p>AND</p> <ul style="list-style-type: none"> • make few if any mistakes in mathematical form, spelling, punctuation and grammar and include units in their final answer <p>QWC1: Candidates will be expected to</p> <ul style="list-style-type: none"> • present work clearly, with words explaining process or steps <p>OR</p> <ul style="list-style-type: none"> • make few if any mistakes in mathematical form, spelling, punctuation and grammar and include units in their final answer 	<p>B1 B1</p> <p>B1 B1</p> <p>B1</p> <p>B1</p> <p>QWC 2</p> <p>8</p>	<p>F.T.£ $8 \times$ ‘their area’.</p> <p>F.T. £ $5 \times$ ‘their perimeter’. (Maximum of two of the above marks if ‘their perimeter’ is the same as ‘their area’.)</p> <p>F.T. addition of ‘their <u>three</u> amounts’. (B0 if more than or less than three amounts used.)</p> <p>QWC2. Presents relevant material in a coherent and logical manner, using acceptable mathematical form, and with few if any errors in spelling, punctuation and grammar.</p> <p>QWC1. Presents relevant material in a coherent and logical manner, but with some errors in use of mathematical form, spelling, punctuation or grammar. OR Evident weakness in organisation of material but using acceptable mathematical form, and with few if any errors in spelling, punctuation and grammar.</p> <p>QWC0. Evident weakness in organisation of material and errors in use of mathematical form, spelling, punctuation and grammar.</p> <p><u>An unsupported answer is QWC0.</u></p>																												
<p>7. $182 - 27 \times 6$ $= 20 \text{ (miles)}$</p> <p>(Distance per child =) $\frac{20}{8}$ $= 2\frac{1}{2} \text{ (miles)}$</p>	<p>M1 A1 M1</p> <p>A1 4</p>	<p>F.T. ‘their derived 20’ (e.g. $182 - 6 = 176$, but not 182).</p> <p>Mark final answer.</p>																												
<p>8(a) Correct strategy (trial)</p> <p>A correct combination. A different correct combination.</p> <p>(b) 7(boxes)</p>	<p>S1</p> <p>B1 B1</p> <p>B1</p> <p>4</p>	<p>Any combination of at least 8 boxes which includes two or three different types, using no more than 5 of any one type, with a correct total (not necessarily 170). Allow any unambiguous presentation of combinations.</p> <table border="1" data-bbox="890 1579 1321 1792"> <thead> <tr> <th></th> <th><u>Box A(15)</u></th> <th><u>Box B(20)</u></th> <th><u>Box C(25)</u></th> </tr> </thead> <tbody> <tr><td>1</td><td></td><td>4</td><td>3</td></tr> <tr><td>2</td><td></td><td>2</td><td>4</td></tr> <tr><td>3</td><td></td><td>(0)</td><td>5</td></tr> <tr><td>3</td><td></td><td>5</td><td>1</td></tr> <tr><td>4</td><td></td><td>3</td><td>2</td></tr> <tr><td>5</td><td></td><td>1</td><td>3</td></tr> </tbody> </table> <p>If no marks gained allow SC1 for a total of 170 using more than 5 boxes of any type.</p> <p>The 7 may be implied. Accept any unambiguous indication of the correct combination. B1 for $1 \times 20 (+) 6 \times 25$. B0 for $20 + 150$.</p> <p>Allow an unsupported answer of 7, BUT an answer of 7 from an incorrect method s B0.</p>		<u>Box A(15)</u>	<u>Box B(20)</u>	<u>Box C(25)</u>	1		4	3	2		2	4	3		(0)	5	3		5	1	4		3	2	5		1	3
	<u>Box A(15)</u>	<u>Box B(20)</u>	<u>Box C(25)</u>																											
1		4	3																											
2		2	4																											
3		(0)	5																											
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4		3	2																											
5		1	3																											

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9. (a)	Line starts at (0, 20). A straight line with gradient 2°C / sec. A straight line from (30,80) to (40,80). A straight line from (40,80) to (60,20).	B1 B1 B1 B1	Accept plot if no line drawn. Need not end at (30, 80) <i>BUT see below</i> . F.T. from 'their (30,80)'. F.T. 'their (40,80)'. Ignore any line drawn beyond 60 seconds. Penalise -1 once only if no straight lines drawn between plots. <i>If all four B1s gained but graph incorrect (e.g. first line did not end at (30,80) penalise -1.</i> OR FT from their graph
(b)	60(°C) in 20 (seconds) or equivalent. 3	M1 A1 6	
10(a)	520×10.25 = 5330 (kroner)	M1 A1	Mark final answer.
(b)	$358.75 \div 10.25$ = (£)35 (A difference of) (£)7.5(0)	M1 A1 A1 5	OR $(42.50 \times 10.25) - 358.75$ M1 (or 76.875) $\div 10.25$ m1 = (£)7.5(0) A1 F.T. £42.50 – 'their £35'.
11.	2.9	B2 2	B1 for 2.8(8.....)
12.	Attempt at using Speed = distance / time. (Average speed =) $10 / \frac{1}{3}$ or equivalent = 30(mph) Yes he could have gone over the speed limit as the 30mph is only an average speed. E.g. 'Yes because it's only an average (speed)' (E1) 'Yes, he could have gone faster, then slower' (E1) BUT 'Yes he could have gone faster'. (E0).	M1 m1 A1 E1 4	e.g. 10(miles) / 20(min) or 10 / 'their time difference'. C.A.O. Independent mark. Must state, or unambiguously imply, 'Yes' AND give a clear explanation. FT 'their average speed' <u>provided</u> it is 40mph or less.
13.	(Volume =) $\pi \times 5^2 \times 14$ = 1099.5(.) (cm ³) or 350π . 'Yes' because 1 litre is (only) 1000cm ³	M1 A1 B1 3	Accept answers between 1099 and 1100 inclusive. F.T. from 'their <u>derived</u> cylinder volume'. 350π must be evaluated for comparison. Must indicate that 1 litre equals 1000(cm ³). 'Yes' may be implied.
14.	5720 <u>171.6(0)</u> 5891.6(0) <u>176.74(8)</u> 6068.34(8) or 6068.35 OR 171.6(0) and 176.74(8) (£)348.35	B1 M1 A1 A1 4	For a correct evaluation of 3% OR Sight of 1.03 (343.2 implies 2×171.6 and gains B1). For correctly attempting to find 2 different 3%. OR 5720×1.03^2 . F.T. one error. Must be given correct to the nearest penny. (£) 348.34 is B1M1A1A0. Treat depreciation as a misread.