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## GCSE MARKING SCHEME

JANUARY 2016

## MATHEMATICS UNITISED - UNIT 2 FOUNDATION TIER 4352/01

## 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.

| 2016 January Unit 2 (non calculator) Foundation Tier | Marks | Mark Scheme Comments |
| :---: | :---: | :---: |
| 1.(a) 845000 <br> (b) 702 <br> (c) 9 <br> (d) 1, 2, 7, 14 <br> (e) (i) $18(00) \div 12$ AND evidence of engagement with method for division (£) $1.5(0)$ or 150 p <br> (ii) $(£) 48$ | $\begin{gathered} \mathrm{B} 1 \\ \mathrm{~B} 1 \\ \mathrm{~B} 1 \\ \mathrm{~B} 2 \\ \\ \mathrm{M} 1 \\ \\ \mathrm{~A} 1 \\ \mathrm{~B} 1 \\ 8 \end{gathered}$ | Allow -9 or $\pm 9$ <br> B1 for 3 or 4 correct factors and no more than 1 wrong factor <br> If units used, they must be correct |
| 2. (a) Obtuse angle in correct position <br> (b) Line through R parallel to PQ <br> (c) $\mathrm{m}^{3}$ or litre (I) kg | $\begin{gathered} \text { B1 } \\ \text { B1 } \\ \text { B1 } \\ \text { B1 } \\ 4 \end{gathered}$ | Use overlay |
| 3. (a) <br> (b)(i) an even chance <br> (ii) impossible | $\begin{gathered} \text { B1 } \\ \text { B1 } \\ \\ \text { B1 } \\ \text { B1 } \\ 4 \\ \hline \end{gathered}$ | Allow $3 / 8$ and $7 / 8$ to represent $A$ and $B$ respectively. <br> Use overlay. <br> A should be between $1 / 4$ and $1 / 2$ exclusive. <br> B should be between $3 / 4$ and 1 exclusive. |
| $\begin{aligned} & \text { 4.(Cost of apple trees }=75+15=£ \text { ) } 90 \\ & \text { (Total cost of trees }=150-25=£) 125 \\ & \text { (Cost of plum trees }=125-90=£) 35 \end{aligned}$ | $\begin{aligned} & \text { B1 } \\ & \text { B1 } \\ & \text { B1 } \\ & \\ & \text { B1 } \end{aligned}$ | ```OR ( \(150-90=£) 60\) OR ( \(60-25=£) 35\) FT 'their 90 ' and 'their 125' and 'their 60' FT 'their 35 '``` |
| Look for <br> - relevance of work shown <br> - generally correct spelling <br> - clarity of text explanation (see statements in brackets) <br> - use of notation (appropriate use of ' $=$ ', ‘ $\because$ ', ‘+', '-', £) <br> QWC2: Candidates will be expected to <br> - present work clearly, with words explaining process or steps AND <br> - make few if any mistakes in mathematical form, spelling, punctuation and grammar and include units in their working <br> QWC1: Candidates will be expected to <br> - present work clearly, with words explaining process or steps <br> OR <br> - make few if any mistakes in mathematical form, spelling, punctuation and grammar, and include units in their working. | $\begin{gathered} \text { QWC } \\ 2 \end{gathered}$ | 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. <br> QWC1 Presents relevant material in a coherent and logical manner but with some errors in use of mathematical form, spelling, punctuation or grammar <br> OR <br> evident weaknesses in organisation of material but using acceptable mathematical form, with few if any errors in spelling, punctuation and grammar. <br> QWC0 Evident weaknesses in organisation of material, and errors in use of mathematical form, spelling, punctuation or grammar. <br> A final unsupported statement is QWCO |
|  | 6 |  |

\begin{tabular}{|c|c|c|c|}
\hline \multicolumn{2}{|l|}{2016 January Unit 2 (non calculator) Foundation Tier} \& Marks \& Mark Scheme Comments \\
\hline \multicolumn{2}{|l|}{\begin{tabular}{l}
5.(a) \(9 m\) \\
(b) (i) \((x=) 8\) \\
(ii) \((x=) 73\)
\end{tabular}} \& \[
\begin{gathered}
\text { B1 } \\
\text { B1 } \\
\text { B1 } \\
3
\end{gathered}
\] \& Accept embedded answers in (b) \\
\hline \[
6 .
\] \&  \& B2

2 \& | B1 for all 4 correct squares and no more than 2 extra squares |
| :--- |
| OR |
| B1 for 3 correct squares and no more than 1 incorrect squares |
| OR |
| B1 for 2 correct squares and no incorrect squares | <br>

\hline \multicolumn{2}{|l|}{$$
\begin{aligned}
& 7.300 \times 9.5 \\
& \quad 2850 \\
& \quad 2.85(0)(\mathrm{kg})
\end{aligned}
$$} \& \[

$$
\begin{gathered}
\hline \text { M1 } \\
\text { A1 } \\
\text { B1 } \\
\\
\\
\hline
\end{gathered}
$$
\] \& FT 'their derived 2850' <br>

\hline \multicolumn{2}{|l|}{| 8. (a) (0). 3 oe |
| :--- |
| (b) (0). 068 |
| (c) 3800 |
| (d) (0). 4 |
| (e) $1 / 100$ |
| (f) $0.35 \times(£) 400$ or equivalent $(=140)$ (£) $400-0.35 \times 400$ |
| (£)260 |} \& | B1 |
| :--- |
| B1 |
| B1 |
| B1 |
| B1 |
| M1 |
| M1 |
| A1 |
| 8 | \& | Correct method for finding $35 \%$ of 400 Full, correct method. |
| :--- |
| $0.65 \times(£) 400$ earns M1M1 |
| CAO | <br>


\hline \multicolumn{2}{|l|}{| 9. (a) |
| :--- |
| (b) $2 / 9$ |} \& | B2 |
| :--- |
| B2 | \& | B1 for at least 4 correct entries |
| :--- |
| FT their table. |
| B1 for a numerator of 2 in a fraction less than 1. |
| B1 for a denominator of 9 in a fraction less than 1. |
| Do not penalise incorrect reduction of fractions from a FT. |
| NB Penalise -1 for use of words such as ' 2 out of 9 ', '2 in 9'. or '2:9'. |
| When both fraction and wrong notation seen, DO NOT penalise wrong notation. | <br>

\hline \multicolumn{2}{|l|}{10. $(x=) 360\left({ }^{\circ}\right) \div 3$} \& $$
\begin{gathered}
\text { M1 } \\
\text { A1 } \\
2
\end{gathered}
$$ \& Alternative method: e.g. $\begin{gathered}(6-2) \times 180 / 6 \text { M1 } \\ \left.120()^{\circ}\right) \quad A 1\end{gathered}$ <br>

\hline \multicolumn{2}{|l|}{$$
\begin{array}{r}
\hline 11.4 / 9 \times 450 \\
200 \\
200 \times(£) 1.75 \\
\text { (£) } 350
\end{array}
$$} \& \[

$$
\begin{gathered}
\text { M1 } \\
\text { A1 } \\
\text { M1 } \\
\text { A1 } \\
4
\end{gathered}
$$
\] \& FT 'their 200' <br>

\hline
\end{tabular}

| 2016 January Unit 2 (non calculator) Foundation Tier | Marks | Mark Scheme Comments |
| :---: | :---: | :---: |
| 12. $\begin{aligned} & 4 x-6=1 \\ & 4 x=7 \\ & (x=) 7 / 4 \text { or } 13 / 4 \text { or } 1.75 \end{aligned}$ | B1 <br> B1 <br> B1 <br> 3 | FT until $2^{\text {nd }}$ error. <br> Mark final answer. <br> Alternative solution: $\begin{array}{cc} 2 x-3=1 / 2 & B 1 \\ 2 x=3.5 & B 1 \\ (x=) 7 / 4 \text { or } 13 / 4 \text { or } 1.75 & \text { B1 } \end{array}$ |
| 13. <br> $3 x+8+4 x-2+90=180$ or equivalent <br> $7 x=84$ OR $7 x+96=180$ OR $7 x+6=90$ $x=12\left(^{\circ}\right)$ $\begin{aligned} & (4 \times 12-2=) 46\left({ }^{\circ}\right) \\ & \left(y=180^{\circ}-46^{\circ}=\right) 134\left({ }^{\circ}\right) \end{aligned}$ | M1 <br> A1 <br> A1 <br> B1 <br> B1 <br> 5 | Check diagram <br> CAO <br> FT 'their $\mathrm{a} x=\mathrm{b}$ ', $\mathrm{a} \neq 1$ <br> Alternative method (for first 3 marks), <br> using trial and improvement to equate the sum of <br> the base angles to 90: <br> 2 appropriate trials <br> Trials of 11 and 13 or trials of 11 and 12 or <br> trials of 12 and 13 $x=12\left(^{\circ}\right)$ <br> Unsupported $x=12\left({ }^{\circ}\right)$ gains 3 marks <br> FT 'their $x^{\prime}$ (provided $x<23\left({ }^{\circ}\right)$ ) <br> FT 'their $46^{\circ}$ ' <br> Alternative (for final 2 marks): $\begin{array}{rl} (y=) 3 \times 12+8+90 & B 1 \\ (=) 134\left(^{\circ}\right) & B 1 \end{array}$ <br> Unsupported $x=12\left({ }^{\circ}\right)$ AND $y=134\left({ }^{\circ}\right)$ gains 5 marks |
| 14. (a) - 1 <br> (b) At least 5 correct plots <br> All 7 points correctly plotted and joined with curve <br> (c) Line drawn correctly Both $x$-coordinates | B1 <br> P1 <br> C1 <br> P1 <br> B1 <br> 5 | Plots should be accurate to within one small square <br> FT 'their table'. <br> C0 for a polygon <br> Strict FT 'their curve' for 2 points of intersection B1 does NOT imply P1 $(x=-0.4 \text { and } x=4.4)$ |
| 15. (a) <br> Method that produces at least 2 correct prime factors <br> Sight of correct factors ( $2,5,5,7$ ) in any order $2 \times 5^{2} \times 7$ <br> (b) Valid explanation e.g. not all powers are even | M1 <br> A1 <br> B1 <br> B1 <br> 4 | FT until $2^{\text {nd }}$ error Ignore 1 s seen <br> FT their factors (with at least 1 index $>1$ used). Do not ignore 1s within the product. <br> BO for a sum or list. <br> Accept any order, provided indices are correctly used. |

