



GCSE MARKING SCHEME

SUMMER 2016

**GCSE MATHEMATICS LINKED PAIR APPLICATIONS
UNIT 1 FOUNDATION
4361-01**

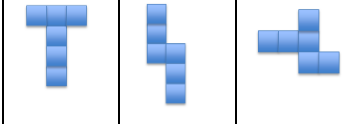
INTRODUCTION

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.

Applications of Mathematics Unit 1 Foundation Tier	Mark	Comments
<p>4. (a) $2 \times (\pounds)23 + (\pounds)16$ (\pounds)62</p> <p>(b) Method of calculating one correct total price Correct price</p> <p>Method of calculating a second correct total price Correct price</p> <p>Cheapest option is using a group of 4 and a group of 5 (and 7 standard single) AND costing (\pounds)309.</p> <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>M1 A1</p> <p>M1 A1</p> <p>M1 A1</p> <p>B1</p> <p>QWC 2</p> <p>9</p>	<p>If only option given as (\pounds)309 award M1 A1 M1A1</p> <p>Penalise -1 only for error seen if 3 or more methods considered.</p> <p>CAO. This must be stated or clearly implied. Unsupported (\pounds)309 award M1 A1 M1 A1 B0 Without incorrect working B1 implies M1 A1 M1 A1 B1.</p> <p><i>Possible options are:</i> <i>11 standard and 5 reduced single tickets:</i> $(\pounds)23 \times 11 + (\pounds)16 \times 5 = (\pounds)333$ <i>Group tickets, using Group of 4 & Group of 5:</i> $(\pounds)68 + (\pounds)80 + (\pounds)23 \times 7 = (\pounds)309$ <i>Group tickets, using Group of 6:</i> $(\pounds)92 + (\pounds)23 \times 9 + (\pounds)16 \times 1 = (\pounds)315$ <i>Group tickets, using 2 Groups of 4:</i> $(\pounds)68 \times 2 + (\pounds)23 \times 7 + (\pounds)16 \times 1 = (\pounds)313$ <i>Group tickets, using 1 group of 4:</i> $(\pounds)68 + (\pounds)23 \times 9 + (\pounds)16 \times 3 = (\pounds)323$ <i>Group tickets, using 1 group of 5:</i> $(\pounds)80 + (\pounds)23 \times 9 + (\pounds)16 \times 2 = (\pounds)319$</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 weaknesses in organisation of material but using acceptable mathematical form, with few if any errors in spelling, punctuation and grammar.</p> <p>QWC0 Evident weaknesses in organisation of material, and errors in use of mathematical form, spelling, punctuation or grammar.</p>
<p>5. (a) White counter placed at (8,2) (b) Coordinates (7, 0) or (3, 4) (c) At least 3 black counters placed at (0,4) (1,5) (2,6) (3,7) (4,8) (5,9) and (6,10) and no incorrect plots.</p>	<p>B1 B1 B3</p> <p>5</p>	<p>Award B2 for 2 correct and no incorrect or 3 or more correct and no more than 1 incorrect. Award B1 for 1 correct and no incorrect or 2 correct and 1 incorrect. Award SC1 for sight of at least 2 correct coordinates but not plotted OR award SC1 for at least 3 reversed coordinates plotted with no errors.</p>

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<p>6. (a)(i) 27 45 63 24 40 56 18 30 42</p> <p>(ii) P(win) 10/25 oe</p> <p>10/25 × 200 80 winners 200 × (£)1 – 80 × (£)1.50</p> <p>(£)80 for charity</p> <p>(b) (i) 1/6 (ii)</p> 	<p>B2</p> <p>B2</p> <p>M1 A1 M1</p> <p>A1</p> <p>B1 B2</p> <p>11</p>	<p>Award B1 for any correct row or column</p> <p>FT “their table of values in (a)(i)”. Award B1 for either a numerator of 10 or a denominator of 25 in a fraction <1 FT “their 10/25”</p> <p><i>120 × (£)1 – 80 × (£)0.50 or equivalent.</i> FT “their derived 80”</p> <p>Award B1 for 1 or 2 correctly identified and none incorrect OR 3 correctly identified and one incorrect.</p>
<p>7. 035° ±2° from Glenod 125° ±2° from Trefwen Correct position of the visitor centre</p> <p>250(°) ±2° from Hafon</p>	<p>B1 B1 B1 B1 4</p>	<p>Use ‘their N’ provided only ±2° from the given N</p> <p>Accept intersection shown FT provided at least B1 previously awarded</p> <p>Use ‘their N’ provided only ±2° from the given N Strict FT from their position of the visitor centre</p>
<p>8. In any order, any 3 factors:</p> <ul style="list-style-type: none"> • Not from exactly same height, not from the same window • Timing may be inaccurate / different stopwatches • Ground may not be level, may not land in the same place • Someone may throw the coin up first, someone could throw with force • Gust of wind might take one of the coins • (Allow) not the same coin used 	<p>B3 3</p>	<p>B1 for each correct factor Accept any other valid factor Allow</p> <ul style="list-style-type: none"> - height of window from the ground - ‘weight’ of coin different <p>‘Coins are different sizes’ and ‘coins have different masses’ is counted as 1 factor</p>
<p>9.(a) Explanation that mentions no common factor (other than 1), or 13 & 17 as prime numbers, or that it is not possible to divide (to simplify) 13 & 17 by any number except 1 (to result in whole number values)</p> <p>(b) (Money from sales of raffle ticket – costs) 480×50p – £12 – £14 – £32 or equivalent (£182)</p> <p>÷30 ×17</p> <p>(£)103</p>	<p>E1</p> <p>M1 M1 A2 5</p>	<p>Allow ‘neither of these numbers are divisible by the same number’, or ‘13 & 17 can’t be divided by a smaller whole number’ Do not accept ‘both numbers are odd and can not be simplified further’, ‘13 & 17 don’t go into the same number’, ‘13 does not go into 17’</p> <p>Intention to calculate ‘total raised – costs’ (= 240 – 58)</p> <p>FT ‘their derived 182’</p> <p>CAO. A1 for 102 or 103(...) Allow A1 only as a FT, provided ‘their error’ is not with place value, depends on previous M1 <i>Treat ÷30×13 as a misread (leading to 78.866... or 79)</i></p>

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<p>10. (a) Use of £5 per 1000 cards</p> <p style="text-align: center;">£0.5(0) or 50p (per 100 cards)</p> <p>(b) Use of £10 per 1000 cards for 1300 cards £13 (for 1800 cards)</p> <p>(c) GoPrint: Any 2 points correctly plotted (Dotted) straight line correctly drawn from (500, 0) to beyond 4000 cards MyPrint: Any 2 points correctly plotted (Dotted) straight line correctly drawn starting from (1000, 20) to beyond 4400 cards</p> <p>(d) Intention to interpret the intersection of the two graphs OR correct interpretation from the table Correct reading for the number of cards or 4000 cards</p>	<p>M1</p> <p>A1</p> <p>M1</p> <p>A1</p> <p>M1</p> <p>A2</p> <p>M1</p> <p>A1</p> <p>11</p>	<p>For example $1000 \div 5$ (= 200 cards for £1), or sight of 200 (cards) with £1, or $5 \div 1000$ (= £0.005 per card)</p> <p>If units are given they must be correct, allow £0.50p <i>SC1 for misread as GoPrint with answer £1</i></p> <p>Or sight of $1800 \div 100 - 5$, or equivalent <i>If no marks, award SC1 for an answer of £18</i></p> <p>A1 for correct (dotted) straight line but drawn for values less than (1000, 20) to beyond 4400 cards, OR for line correctly drawn starting from (1000, 20) to 4400 cards (not beyond)</p> <p>FT their graphs provided at least one of the lines is straight Answer of the cost implies M1 only, however accept an answer including the cost e.g. '4000 cards is £35'</p>
<p>10. (e)(i) $20 + 5(56500 - 1000)/1000$ (£)297.5(0)</p> <p>(ii) Reason, e.g. 'formula only for number of cards greater than 1000', 'n - 1000 is negative', 'don't know charges for less than 1000 cards', 'don't take orders for less than 1000 cards', 'because $800 - 1000$ is negative', or 'as $800 - 1000 = -200$'</p>	<p>M1</p> <p>A1</p> <p>E1</p> <p>3</p>	<p>Ignore any additional incorrect statement included Do not accept 'they can use it, the cost would be £19'</p>