

CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

MARK SCHEME for the October/November 2013 series

0607 CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/03

Paper 3 (Core), maximum raw mark 96

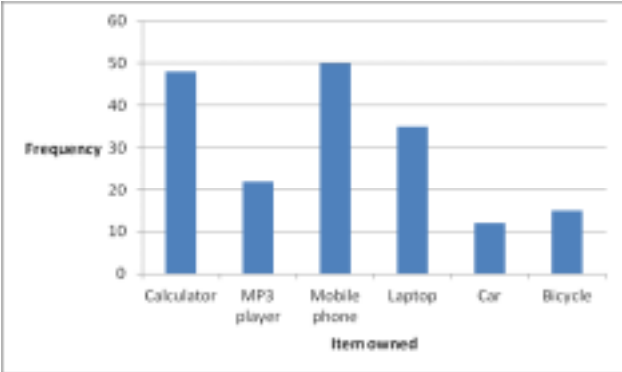
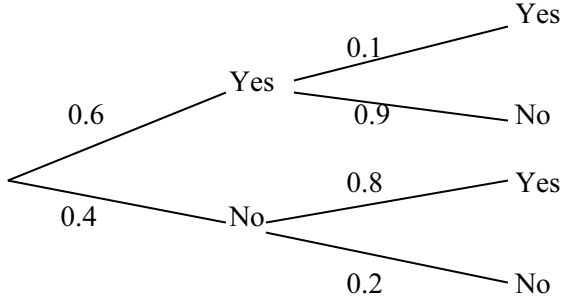
This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2013 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

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<p>1 (a)</p> <p>(b)</p> <p>(c) (i)</p> <p>(ii)</p>	 <p>10 : 7 : 3</p> <p>$\frac{35}{50}$ oe</p> <p>50/50 oe</p>	<p>2</p> <p>2</p> <p>1</p> <p>1</p>	<p>B1 for 2 correct bars.</p> <p>B1 for 50 : 35 : 15 oe including decimals</p>
<p>2 (a)</p> <p>(b)</p> <p>(c)</p> <p>(d)</p>	<p>$\frac{17}{50} \times 1400 = 476$ Answer given</p> <p>504</p> <p>28</p> <p>2%</p>	<p>2</p> <p>2</p> <p>1FT</p> <p>2 FT</p>	<p>M1 for $\frac{17}{50}$ or $1400/(15+17+18)$ or 28 seen.</p> <p>M1 for $476 + 28$ or $\frac{18}{50} \times 1400$</p> <p>M1 for $\frac{their\ 28}{1400}$</p>
<p>3 (a)</p> <p>(b)</p> <p>(c)</p>	 <p>0.06 oe isw</p> <p>0.62 oe isw</p>	<p>3</p> <p>2FT</p> <p>3</p>	<p>B1 for each pair correct</p> <p>M1 for $0.6 \times their\ 0.1$</p> <p>M2FT for $0.6 \times their\ 0.9 + their\ 0.4 \times their\ 0.2,$ M1 for one of these products</p>
<p>4 (a)</p> <p>(b)</p>	<p>10</p> <p>65.7 (65.66 – 65.67)</p>	<p>1</p> <p>2</p>	<p>M1 for at least three mid-values seen.</p>

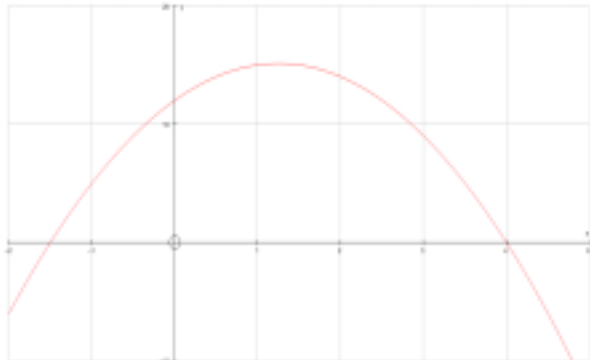
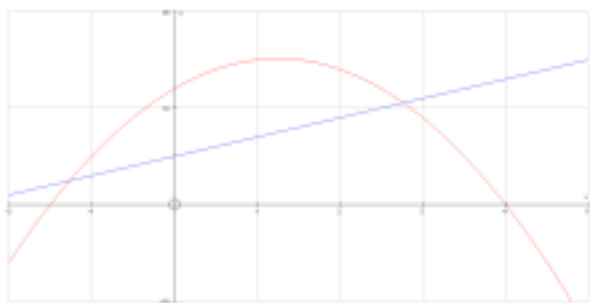
Page 3	Mark Scheme	Syllabus
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<p>(c)</p> <table border="1" data-bbox="295 212 853 481"> <thead> <tr> <th></th> <th>Cumulative frequency</th> </tr> </thead> <tbody> <tr> <td>< 20</td> <td>2</td> </tr> <tr> <td>< 10</td> <td>10</td> </tr> <tr> <td>< 60</td> <td>23</td> </tr> <tr> <td>< 80</td> <td>44</td> </tr> <tr> <td>< 100</td> <td>54</td> </tr> <tr> <td>< 120</td> <td>60</td> </tr> </tbody> </table> <p>(d)</p> <p>(e) 65 – 69</p> <p>(f) 31 – 35 www</p>		Cumulative frequency	< 20	2	< 10	10	< 60	23	< 80	44	< 100	54	< 120	60		<p>1</p> <p>2</p> <p>1 FT</p> <p>2</p>	<p>B1 FT for 4 points plotted correctly. C1FT for reasonable curve through <i>their</i> points</p> <p>FT from line or mark on curve at 30.</p> <p>M1 FT for reading off their UQ (45th value, 81 – 83) or LQ (15th value, 48 – 50)</p>
	Cumulative frequency																
< 20	2																
< 10	10																
< 60	23																
< 80	44																
< 100	54																
< 120	60																
<p>5 (a) (i) 900</p> <p>(ii) 4500</p> <p>(b) (i) 707 (706.5 – 707.0)</p> <p>(ii) 22.5</p> <p>(iii) 44.2 (44.15 – 44.1875)</p> <p>(c) 24</p>		<p>1</p> <p>1FT</p> <p>1</p> <p>1</p> <p>1FT</p> <p>2</p>	<p>M1 for attempted correct use of $\frac{4}{5}$ oe</p>														
<p>6 (a) (i) [0]8 05</p> <p>(ii) 9</p> <p>(b) [0]8 [00]</p> <p>(c) 12.5</p>		<p>1</p> <p>2</p> <p>2</p> <p>2</p>	<p>M1 for $\frac{3}{\text{time}}$ oe. e.g. $\frac{3000}{20}$</p> <p>M1 for $\frac{1}{4}$ or 15 minutes seen</p> <p>M1 for 30×25 or $\frac{25}{60}$ or SC1 for 7.5</p>														

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(d)	Ana	1 FT	FT <i>their</i> (a)(i) and (b)
7 (a) (i)	Reflection, $x = 7$	1, 1	
(ii)	Translation $\begin{pmatrix} -8 \\ -6 \end{pmatrix}$	1, 1	Accept in words
(b)	Shape with coordinates $(-2, 2), (-5, 2), (-5, 4), (-6, 4), (-6, 5)$ and $(-2, 5)$	2	SC1 for correct reflection in the x -axis or reflection in $y = k$
8 (a)	16 and 13	1, 1	
(b)	$31 - 3n$	2	M1 for $-3n + k$ or $31 + kn$
9 (a)	Pentagon	1	
(b)	540	2	M1 for attempt to divide into triangles or $(5 - 2) \times 180$ oe
(c)	105	2 FT	M1 for <i>their</i> $540 - (90 + 85 + 135 + 125)$ FT only if the answer is positive
10 (a)	1, 2, 3, 4, 6, 12	1	
(b)	<p>U</p>	2 FT	Award B1 for one correct subset
(c) (i)	3	1 FT	
(ii)	1	1 FT	
(iii)	5	1 FT	

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<p>11 (a)</p> <p>(b)</p> <p>(c)</p>	<p>54.5 (54.54...)</p> <p>131 (130.5 – 130.8)</p> <p>57.0 or 57.1 or 57.2 (57.02 – 57.16)</p>	<p>3</p> <p>M2 for $\sqrt{(60^2 - 25^2)}$ oe M1 for correct Pythagoras statement.</p> <p>3</p> <p>M2 for $2\cos^{-1}(\frac{25}{60})$ oe or B2 for 65.4 or 65.27 to 65.40 M1 for $[\cos O =] \frac{25}{60}$ oe or multiplying their angle AOB by 2. Accept reflex angle (229.2 – 229.3).</p> <p>2</p> <p>M1 for $\frac{\text{their } 131}{360}$. Accept major arc (100.0 – 100.1).</p>
<p>12 (a)</p> <p>(b)</p> <p>(c)</p> <p>(d)</p> <p>(e)</p>	 <p>(b) -1.5 and 4</p> <p>(c) (1.25, 15.125)</p>  <p>(e) -1.27 and 2.77</p>	<p>2</p> <p>C1 for smooth curve, correct shape. C1 for axes intercepts in approximately the correct place.</p> <p>1, 1</p> <p>No co-ordinates</p> <p>1, 1</p> <p>Allow 15.1 or better</p> <p>1</p> <p>3</p> <p>B2 for one correct to 2 dp B1 for -1.265 – -1.266, B1 for 2.765 – 2.766 If 0, SC1 for 2.76 and -1.26 or 2.8 and -1.3</p>

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13	(a)	(i)	$4x + 3$	2	M1 for $2x + 4$ or SC1 for $4x + 1$
		(ii)	$15p^7$	2	B1 for kp^7 or $15p^k$
		(iii)	$\frac{3}{2}r^3$ oe	2	B1 for kr^3 or $\frac{3}{2}r^k$, accept $1.5r^3$ for 2 marks.
		(iv)	$36t^8$	2	B1 for kt^8 or $36t^k$
	(b)		$6pq(2p + 3)$	2	B1 for any correct partial factorisation
	(c)		$s = \frac{r - 2pm}{n}$ oe	2	B1 for subtracting $2pm$ or dividing by n .