CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 series

0607 CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/31 Paper 3 (Core), maximum raw mark 96

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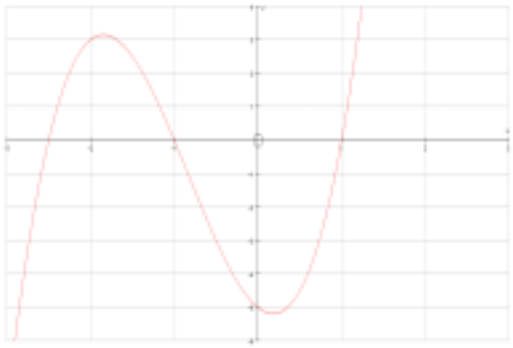
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1	**(a)**	12 or 14 or 21 or 28 or 42 or 84	**1**	
	(b)	Any multiple of 12	**1**	
	(c)	23 or 29	**1**	
	(d)	1	**1**	
	(e)	4	**1**	
	(f)	$90 < \text{angle} < 180$	**1**	
	(g)	2	**1**	
2	**(a)**	3600	**1**	
	(b)	2.64	**1**	
	(c)	3.09	**1**	
	(d)	$4a + 2b$	**2**	**M1** for $4a + kb$ or $ka + 2b$ $k \neq 0$
	(e)	–7	**2**	**M1** for –3 or –4 seen
3	**(a) (i)**	13.5 or 13.52 to 13.53	**1**	
	(ii)	2.5921	**1**	
	(iii)	30	**1**	
	(iv)	$\frac{5}{8}$ oe	**1**	
	(v)	28.71	**2**	**M1** for 0.45×63.8 oe
	(vi)	0.356 or $0.3\dot{5}$ or $\frac{16}{45}$ or 0.3555 to 0.3556	**2**	**M1** for 10.8
	(b)	24 : 28	**2**	1 mark each or **M1** for dividing by 13 soi by 4
	(c)	11 0.31 oe	**1** **2**	 **M1** for *their* 11×1.79 where 11 is a whole number If 0 scored, **SC1** for 31
4	**(a)**	120	**2**	**M1** for $\frac{360}{9}$ soi by 40
	(b)	Angles of 120, 80 and 160 Correct labels	**3**	**B1** for 80 or 160 seen or drawn **B1** for correct labels in order of size on complete pie chart

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5	**(a)**	37.8[0]	**2**	**M1** for $600 \times 3 \times 2.1$ **SC1** for 637.8[0]
	(b)	36.72	**4**	**B3** for 636.72 or **M2** for $600 \times (1.02)^3$ or **M1** for $600 \times (1.02)^k$, $k > 1$ **SC1** if 1.2 used correctly instead of 1.02
6	**(a)**	10 : 5 : 4	**2**	**M1** for any correct simplification
	(b) (i)	2.2[0]	**3**	**B2** for 3 correct of 60, 35, 80, 45 **B1** for 2 correct of 60, 35, 80, 45
	(ii)	0.22	**1 FT**	**FT** *their* **(b)(i)** ÷ 10
	(iii)	0.28 or 28 cents	**1 FT**	**FT** *their* **(b)(ii)**
	(iv)	127 or 127.2 to 127.3	**2 FT**	**M1** for $\frac{\textit{their}\ 0.28}{\textit{their}\ 0.22} \times 100$ or **M1** for $\frac{0.5}{\textit{their}\ 0.22} \times 100$
7	**(a)**	Correct line drawn	**1**	
	(b)	18	**2**	**M1** for evidence of correct method
	(c)	17.7 or 17.64 to 17.66	**4**	**M2** for $\sqrt{1^2 + 1^2}$ or **M1** for $1^2 + 1^2$ **B1** for 12 seen
	(d)	0.177 or 0.1765 to 0.1766	**1 FT**	**FT** from *their* **(c)** ÷ 100
8	**(a)**	Pentagon	**1**	
	(b)	108	**3**	**M1** for 540 **M1** for dividing *their* 540 by 5 or **M1** for $\frac{360}{5}$, **M1** for 180 – *their* 72
9	**(a)**	–1 –5	**1** **1**	
	(b)	$19 - 4n$	**2**	**B1** for $k - 4n$ or $19 - kn$ **SC1** for $4n - 19$

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10	**(a)**	Points plotted correctly	**2**	1 mark each
	(b)	7.07 or 7.071…	**3 FT**	**M2** for $(-5)^2 + 5^2$ or **M1** for 5^2 soi
	(c)	–1	**2 FT**	**SC1** for 1
	(d)	$y = -x + 1$	**2 FT**	**B1** for $y = kx + 1$, $k \neq 0$ **B1** for $y = -x + k$, $k \neq 0$
11	**(a)**	3 points plotted correctly	**2**	**B1** for 1 point correctly plotted
	(b)	positive	**1**	
	(c) (i)	4.21 or 4.214…	**1**	
	(ii)	70.1 or 70.14…	**1**	
	(iii)	Point plotted correctly	**1 FT**	
	(iv)	Correct line drawn	**2**	**B1** for line with positive gradient passing through the mean point **B1** for line within tolerance
	(d)	110	**1 FT**	**FT** from *their* line
12	**(a)**		**2**	**B1** for turning points in approximately correct places **B1** for axes intercepts in approximately correct places
	(b)	1, –1 and –2.5	**2**	**B1** for 2 correct
	(c)	(0.18[0], –5.19)	**1**	
		(–1.85, 3.15) or (0.1804 to 0.1805, –5.19 to –5.186…) or (–1.85 to –1.847…, 3.15 to 3.149…)	**1**	**SC1** for 1 error
	(d) (i)	1	**1**	
	(ii)	3	**1**	

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13	**(a)**	Vertices at (3, 0), (7, 0), (5, 4) and (5, –4) and correct label	**2**	**B1** for reflection in $y = 3$
	(b)	Vertices at (3, 0), (1, 4), (5, 4) and (3, 8) and correct label	**2 FT**	**B1** for translation $\begin{pmatrix} k \\ 4 \end{pmatrix}$ or $\begin{pmatrix} -2 \\ k \end{pmatrix}$ $k \neq 0$
	(c)	Vertices at (3, 0), (1, –4), (5, –4) and (3, –8) and correct label	**2 FT**	**B1** for a rotation of 180° about another point
	(d)	Rhombus	**1 FT**	

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