CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 series

0607 CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/33 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.

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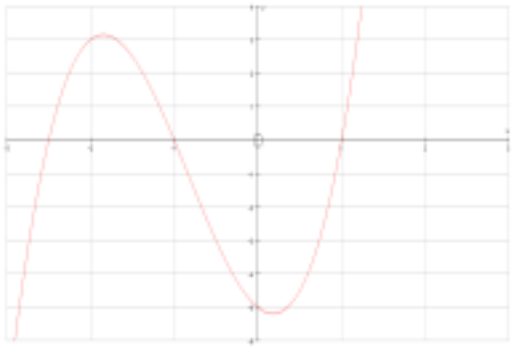
CAMBRIDGE
International Examinations

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

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 $4n - 19$

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**	

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**	