CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the May/June 2015 series

0607 CAMBRIDGE INTERNATIONAL MATHEMATICS

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

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Abbreviations

cao correct answer only
dep dependent
FT follow through after error
isw ignore subsequent working
oe or equivalent
SC Special Case
nfww not from wrong working
soi seen or implied

Question	Answer	Mark	Part Marks
1 (a)	300 058	**1**	
(b)	–6	**1**	
(c)	21 600	**1**	
(d)	0.06	**1**	
(e)	78	**1**	
(f)	23	**1**	
(g)	$\frac{13}{20}$	**2**	**M1** for $\frac{65}{100}$
(h)	76, 57	**2**	**M1** for dividing by 7 soi
2 (a)	$8x - 2y$ as final answer	**2**	**B1** for $8x - ky$ or $kx - 2y$ as final answer
(b)	16	**2**	**M1** for $2 \times 3 + -2 + 3 \times 4$ seen or **B1** for 6 and 12 seen
(c)	5.1	**2**	**B1** for 8.4 seen or **M1** for $18.6 = 2x + 3 \times 2.8$ seen
(d)	2	**2**	**M1** for correct first step
(e)	0 –1 2 3 3 5	**2**	**B1** for –1 **B1** for 3 and 5
3	$a = 90$ $b = 26$ $c = 64$ $d = 116$	**1** **1** **1** **1 FT**	 **FT** 180 – *their c*
4 (a)	345	**2**	**M1** for $30 \times 10 + 3 \times 15$
(b)	1110	**2 FT**	**M1** for $5 \times 33 + 600 +$ *their* 345
(c)	37	**2 FT**	**M1** for *their* $\frac{1110}{30}$

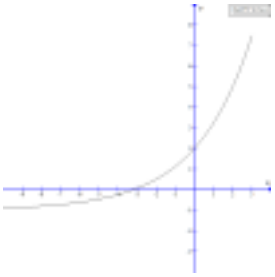
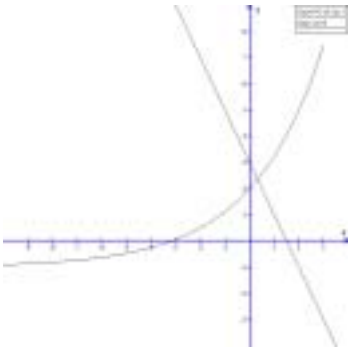
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5	**(a) (i)**	8	**1**	
	(ii)	5.5	**1**	
	(iii)	4.5	**1**	
	(iv)	6	**1**	
	(v)	5.75	**1**	
	(b) (i)	2 1 3 0 4 1 5 2 6 1 7 0 8 3	**1**	
	(ii)	Correct bar chart	**2 FT**	**B1 FT** for 4 bars correct
6	**(a)**	3750	**2**	**M1** for $25 \times 75 \times 2$
	(b) (i)	4150	**3**	**M2** for $2(25 \times 2 + 75 \times 2 + 25 \times 75)$ or **B1** for 50, 150, 1875 soi
	(ii)	0.415	**1 FT**	**FT** *their* **(b)(i)** ÷ 10 000
	(c)	$5 \times 3 + 6 \times 4 + 4 \times 2.5 + 3 \times 7$ [= 70] yes	**1** **1 FT**	**M1** for correct method **A1 FT** dep *their* 70 [strict]
7	**(a)**	–5 –12	**1** **1**	
	(b)	$30 - 7n$	**2**	**B1** for $30 - kn$, $k \neq 0$, or $j - 7n$
8	**(a)**	$-\frac{1}{2}$ oe	**2**	**M1** for dividing by 2 oe
	(b)	$-\frac{1}{2}$ oe	**1 FT**	**FT** *their* $-\frac{1}{2}$
	(c)	[$y =$] $-\frac{1}{2}x + 6$	**1 FT**	**FT** *their* **(b)**

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9	**(a)** **(i)**	2, 3, 6	**1**	
	(ii)	3, 6	**1**	
	(iii)	2, 3, 4, 5, 6	**1**	
	(iv)	1, 2	**1**	
	(v)	4, 5	**1**	
	(b)	6	**1**	
10	**(a)**	Correct line $y = 3$	**1** **1 FT**	 **FT** *their* line $y = k,\ 2 \leqslant k \leqslant 4$ or $x = 4$
	(b)	$\begin{pmatrix} 4 \\ -3 \end{pmatrix}$	**2**	**B1** for $\begin{pmatrix} k \\ -3 \end{pmatrix}$ or $\begin{pmatrix} 4 \\ k \end{pmatrix}$ If 0 scored **SC1** for $\begin{pmatrix} -4 \\ 3 \end{pmatrix}$ or $\begin{pmatrix} -3 \\ 4 \end{pmatrix}$
	(c)	(0, 0) 90° [anti-clockwise] or –270°	**1** **1**	
11	**(a)**	3 min 12 seconds	**2**	**B1** for 3.2
	(b)	105	**3**	**M2** for $\frac{168}{1.6}$ oe or **M1** for a correct time conversion.
12	**(a)**	$\frac{1}{80}, \frac{79}{80}$ $\frac{2}{3}, \frac{1}{3}$ $\frac{1}{50}, \frac{49}{50}$	**3**	**B1** for each pair
	(b)	$\frac{1}{240}$	**2**	**M1** for $\frac{1}{80} \times \frac{1}{3}$
	(c)	Accept 1 or 2 days	**2 FT**	**M1 FT** for $250 \times$ *their* **(b)**

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13	**(a)**	[The triangle is] equilateral $OA = 46$ or angles A and B are 60°	**1** **1**	
	(b)	48.2 or 48.17 to 48.18	**2**	**M1** for $\frac{60}{360} \times 2 \times \pi \times 46$
	(c)	1110 or 1107 to 1108	**2**	**M1** for $\frac{60}{360} \times \pi \times 46^2$
	(d)	916 or 915.4 to 916.3	**3**	**M1** for 46cos30 oe (= 39.837…) and **M1 FT** dep for 0.5 × 46 × *their* 39.837…
	(e)	194 or 195 or 190.7 to 194.6	**1 FT**	**FT** *their* **(c)** – *their* **(d)**
14	**(a)**		**2**	**M1** for correct shape through 3 quadrants **A1** for approximately correct axis intercepts (less than half way on both axes)
	(b)	–3.17 or –3.170 to –3.169	**1**	
	(c)	$y = -1$	**1**	
	(d)		**2**	**B1** for negative gradient **B1** for correct y-intercept at approximately 3
	(e)	[x =] 0.323 or 0.3225 to 0.3226 [y =] 2.35 or 2.354 to 2.355	**1** **1**	If 0 scored **SC1** for correct co-ordinates reversed.

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