

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

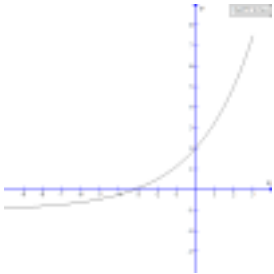
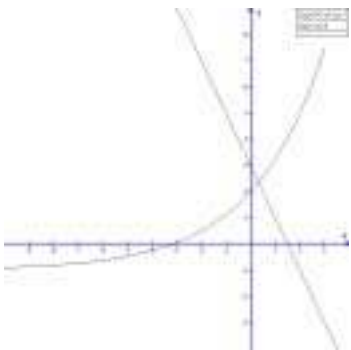
cao	correct answer only
dep	dependent
FT	follow through after error
isw	ignore subsequent working
oe	or equivalent
SC	Special Case
nfw	not from wrong working
soi	seen or implied

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)	$\begin{array}{cc} 0 & -1 \\ 2 & 3 \\ 3 & 5 \end{array}$	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 – <i>their</i> c
4 (a)	345	2	M1 for $30 \times 10 + 3 \times 15$
(b)	1110	2 FT	M1 for $5 \times 33 + 600 + \text{their } 345$
(c)	37	2 FT	M1 for <i>their</i> $\frac{1110}{30}$

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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 <i>their</i> (b)(i) $\div 10\,000$
	(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 <i>their</i> 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 <i>their</i> $-\frac{1}{2}$
	(c)	$[y =] -\frac{1}{2}x + 6$	1 FT	FT <i>their</i> (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 <i>their</i> line $y = k$, $2 \leq k \leq 4$ 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 $250 \times \text{their (b)}$	

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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 $46\cos 30$ oe ($= 39.837\dots$) and M1 FT dep for $0.5 \times 46 \times \text{their } 39.837\dots$
	(e)	194 or 195 or 190.7 to 194.6	1 FT	FT <i>their (c) – their (d)</i>
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.