

**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

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 May/June 2015 series for most Cambridge IGCSE<sup>®</sup>, Cambridge International A and AS Level components and some Cambridge O Level components.

® IGCSE is the registered trademark of Cambridge International Examinations.

<b>Page 2</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>Cambridge IGCSE – May/June 2015</b>	<b>0607</b>	<b>31</b>

### 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						
<b>1</b> (a)	300 058	<b>1</b>							
(b)	−6	<b>1</b>							
(c)	21 600	<b>1</b>							
(d)	0.06	<b>1</b>							
(e)	78	<b>1</b>							
(f)	23	<b>1</b>							
(g)	$\frac{13}{20}$	<b>2</b>	<b>M1</b> for $\frac{65}{100}$						
(h)	76, 57	<b>2</b>	<b>M1</b> for dividing by 7 soi						
<b>2</b> (a)	$8x - 2y$ as final answer	<b>2</b>	<b>B1</b> for $8x - ky$ or $kx - 2y$ as final answer						
(b)	16	<b>2</b>	<b>M1</b> for $2 \times 3 + -2 + 3 \times 4$ seen or <b>B1</b> for 6 and 12 seen						
(c)	5.1	<b>2</b>	<b>B1</b> for 8.4 seen or <b>M1</b> for $18.6 = 2x + 3 \times 2.8$ seen						
(d)	2	<b>2</b>	<b>M1</b> for correct first step						
(e)	<table style="border: none;"> <tr> <td style="padding-right: 10px;">0</td> <td>−1</td> </tr> <tr> <td>2</td> <td>3</td> </tr> <tr> <td>3</td> <td>5</td> </tr> </table>	0	−1	2	3	3	5	<b>2</b>	<b>B1</b> for −1 <b>B1</b> for 3 and 5
0	−1								
2	3								
3	5								
<b>3</b>	$a = 90$ $b = 26$ $c = 64$ $d = 116$	<b>1</b> <b>1</b> <b>1</b> <b>1 FT</b>	<b>FT</b> 180 – their $c$						
<b>4</b> (a)	345	<b>2</b>	<b>M1</b> for $30 \times 10 + 3 \times 15$						
(b)	1110	<b>2 FT</b>	<b>M1</b> for $5 \times 33 + 600 +$ their 345						
(c)	37	<b>2 FT</b>	<b>M1</b> for their $\frac{1110}{30}$						


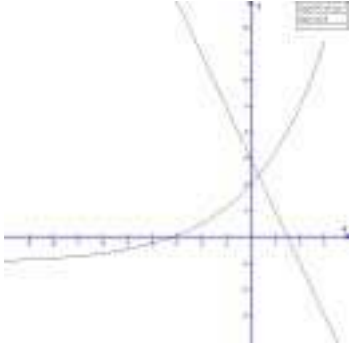
Page 3	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – May/June 2015	0607	31

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) $\div 10\,000$
	(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 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)

Page 4	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – May/June 2015	0607	31

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

Page 5	Mark Scheme	Syllabus	Paper
	Cambridge IGCSE – May/June 2015	0607	31

13 (a)	[The triangle is] equilateral $OA = 46$ or angles $A$ and $B$ are $60^\circ$	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.