CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2014 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.

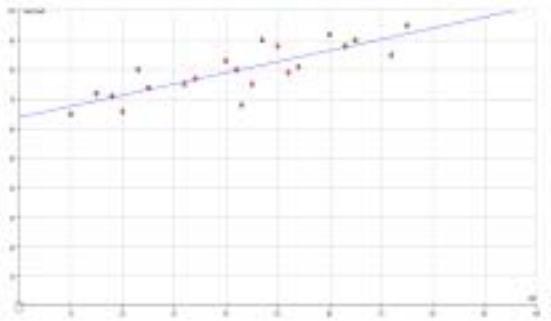
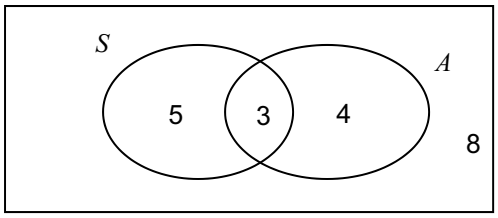
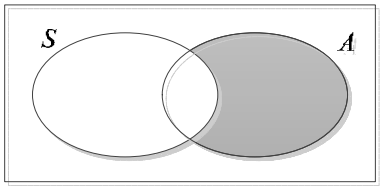
Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2014 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

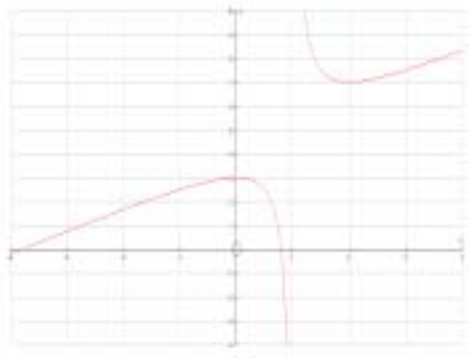
CAMBRIDGE
International Examinations

1	**(a)**	25	**1**	
	(b)	21	**1**	
	(c)	22	**1**	
	(d)	27	**1**	
	(e)	23	**1**	
2	**(a)**	13.7	**2**	**M1** for 6.2 or 7.5 seen
	(b)	3.5	**2**	**B1** for $2p = 7$
	(c)	$q = \frac{r - 2p}{3}$	**2**	**M1** for correct rearrangement for q or **M1** for correct division by 3
3	**(a)**	21, 17	**1, 1FT**	**FT** (*their* 21) – 4
	(b)	7.7	**2**	**B1** for 7.745 – 7.746
	(c)	$\frac{7}{25}$	**1**	
	(d)	392 : 112	**2**	**M1** for dividing by 9, soi by 56
	(e)	0.11, $\frac{1}{8}$, 1.3×10^{-1}, 14% oe	**2**	**B1** for 3 in correct order when one is covered up
4	**(a)**	70	**1**	
	(b)	20	**1**	
	(c)	110	**1 FT**	**FT** 180 – *their AMB*

5	**(a)**	<table><tr><th>Raisins</th><th>Frequency</th></tr><tr><td>37</td><td>[3]</td></tr><tr><td>38</td><td>8</td></tr><tr><td>39</td><td>7</td></tr><tr><td>40</td><td>[4]</td></tr><tr><td>41</td><td>4</td></tr><tr><td>42</td><td>2</td></tr><tr><td>43</td><td>[2]</td></tr></table>	**2**	**B1** for 2 correct entries
	(b)	Heights 8, 7, 4, 2	**1** **1 FT**	**B1** for correct width **B1FT** for correct heights
	(c) (i)	6	**1**	
	(ii)	38	**1 FT**	
	(iii)	39	**1 FT**	
	(iv)	39.4	**1 FT**	
	(d)	$\frac{8}{30}$ oe	**1 FT**	**FT** *their* 8 isw
6	**(a)**	1750	**1**	
	(b)	450	**1 FT**	**FT** from **(a)**
	(c) (i)	45	**2 FT**	**M1** for $\frac{10}{100} \times$ *their* **(b)**
	(ii)	405	**1 FT**	
	(d)	18630	**2 FT**	**M1** for $(52 - 6) \times$ *their* **(c)(ii)**

7	**(a)**	120	**1**	
	(b)	20	**2**	**M1** for $\frac{63}{360}\times 120$ oe
	(c)	The angles are not the same oe So, yes it is biased	**2**	**M1** for a correct reason.
8	**(a)**	positive	**1**	
	(b)	Point correctly plotted on diagram	**1**	
	(c)		**2**	**M1** for line passing through the point (42, 80) **M1** for line within tolerance
	(d)	75 ± 2	**1 FT**	**FT** from their line
9	**(a)**	76	**1**	
	(b)	10 hours 59 minutes	**2**	**M1** for $\frac{494}{45}$. If **M0**, **SC1** for 10 h 58 min or 11 h.
10	**(a)**		**2**	**B1** for 3 in $S \cap A$
	(b)	8	**2**	**M1** for 20 – *their* value in Venn diagram
	(c)	e.g. Square, regular polygons, equilateral triangle	**1**	
	(d)		**1**	

11	**(a)**	$5d + 4s = 1850$	**1**	
	(b)	$d = 250$ $s = 150$	**1** **1**	If 0 scored, **M1** for correctly eliminating one variable
12	**(a)**	12.5 or 12.52 to 12.53	**2**	**M1** for $11^2 + 6^2$
	(b)	28.6 or 28.3 to 28.7	**2**	**M1** for use of correct trig ratio
13	**(a)**	630	**3**	**M1** for area of rectangle (30×18) **M1** for area of triangle(s) $[0.5] \times 5 \times 18$
	(b)	9850 or 9836 to 9852	**5**	**M2** for $\sqrt{5^2 + 18^2}$ or **M1** for $5^2 + 18^2$. **M1FT** for $[2] \times$ *their* $\sqrt{5^2 + 18^2} \times 80$ **M1** for $(30 \times 80) + (40 \times 80)$ soi
	(c)	50400	**1 FT**	$80 \times$ *their* **(a)**
	(d)	50.4[00]	**1 FT**	$\frac{\textit{their}\ \textbf{(c)}}{100}$
	(e)	4.01 or 4.01…	**2 FT**	**M1** *their* **(d)** divided by 4π
14	**(a)**	97.2 or 97.18…	**3**	**M1** for $\sin[x] = \frac{6}{8}$ or better **M1** for doubling answer **SC2** if 48.59… seen
	(b)	48.6 or 48.59…	**2 FT**	**B1** for 41.40 to 41.41 seen
	(c)	13.6 or 13.57…	**2 FT**	**M1** for *their* $\frac{97.2}{360}$ seen

15	**(a)**		**4**	**B2** for two separate curves seen and approximately correct shape or **B1** if curves joined **B1** for maximum and minimum in approximately correct place **B1** for axes intercepts in approximately correct place
	(b)	(2 , 7)	**1**	
	(c)	$x = 1$	**1**	
	(d)	$[f(x)] \leq 3$	**2**	B1 for $[f(x)] < 3$
	(e)		**2**	**B2** for line within tolerance **B1** for line with positive gradient cutting each branch of the curve once.
	(f)	0.423 or 0.4226… 1.58 or 1.577…	**1** **1**	