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

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Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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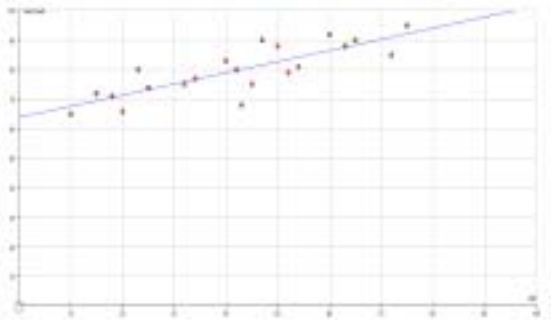
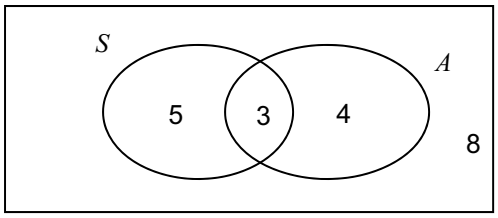
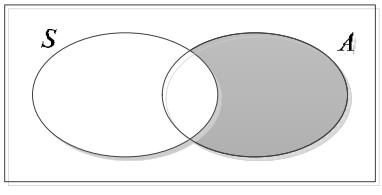
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1	**(a)**	25	**1**	
	(b)	21	**1**	
	(c)	22	**1**	
	(d)	27	**1**	
	(e)	23	**1**	
2	**(a)**	13.7	**2**	**M1** for 6.2 or 7.5 seen
	(b)	3.5	**2**	**B1** for $2p = 7$
	(c)	$q = \frac{r - 2p}{3}$	**2**	**M1** for correct rearrangement for q or **M1** for 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*

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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)**

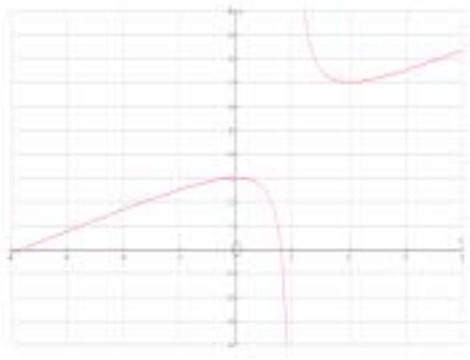
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7	**(a)**	120	**1**	
	(b)	20	**2**	**M1** for $\frac{63}{360}\times 120$ oe
	(c)	The angles are not the same oe So, yes it is biased	**2**	**M1** for a correct reason.
8	**(a)**	positive	**1**	
	(b)	Point correctly plotted on diagram	**1**	
	(c)		**2**	**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**	

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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] × *their* $\sqrt{5^2 + 18^2} \times 80$ **M1** for $(30 \times 80) + (40 \times 80)$ soi
	(c)	50400	**1 FT**	80 × *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

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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**	

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