CAMBRIDGE
INTERNATIONAL EXAMINATIONS

June 2003

INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK: 104

SYLLABUS/COMPONENT: 0580/03, 0581/03

MATHEMATICS

Paper 3 (Core)

UNIVERSITY of CAMBRIDGE
Local Examinations Syndicate

Page 1	Mark Scheme	Syllabus	Paper
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1	**(a)**	7	**1**	
	(b)	42	**1**	
	(c) (i)	9	**1**	
	(ii)	8	**2**	**M1** for evidence of idea of mid-value
	(iii)	8.3	**3**	**M1** for 4 x 5 + 7 x 6……+ 3 x 12 or 415 **M1** (dep) for ÷ 50
	(d)	5cm	**2**	**M1** for 1cm to 2 students o.e.
	(e)	36^{o}	**2**	**M1** for $\frac{5}{50}$ x 360
	(f)	$7.5(0)	**2**	**M1** ÷ 3
	(g)	22	**2**	**M1** for $\frac{11}{50}$ (x 100) **SC1** for $\frac{19}{50}$ (x 100) = 38%
	(h) (i)	$\frac{6}{50}$	**1**	Accept equivalent fractions, decimals or percentages
	(ii)	$\frac{14}{50}$	**1**	
	(iii)	1	**1**	
				19
2	**(a)**	120, …….24, 20	**1, 1, 1**	
	(b)	7 correctly plotted points f.t. correct curve	**P3** **C1**	Deduct 1 for each error (±1mm) Must be a reasonable hyperbola
	(c)	1.6 to 1.8	**1**	Accept f.t.
	(d)	120, ……..0	**2**	
	(e)	Straight line through 4 points	**L2**	**L1** if short or not ruled **SC1** for √ if all straight lines
	(f)	(1.2 – 1.4, 92 – 96) (4.6 – 4.8, 24 - 26)	**1** **1**	Accept f.t.
	(g)	-20	**2**	**SC1** for 20 **or** **M1** for rise/run seen (numerical attempt)
				16

Page 2	Mark Scheme	Syllabus	Paper
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3	**(a) (i)**	175 cents	**1**	
	(ii)	25*b* cents	**1**	
	(iii)	\$1.75	**1 or √**	
	(iv)	$\$\frac{b}{4}$ (allow $\frac{25b}{100}$) (0.25b)	**1 or √**	If involves b
	(b) (i)	$\frac{T}{n}$	**1**	
	(ii)	The cost of one bar	**1**	
	(c) (i)	4.5(0)	**1**	
	(ii)	4.2(0)	**2**	**M1** for (36 – 6.60)/7
	(iii)	$\frac{y}{x}$	**1**	
	(iv)	$\frac{y-7}{x-1}$	**2**	**B1** for $y-7$ or $x-1$ seen
				12
4	**(a) (i)**	*P* with vertices (4, 11), (2, 11), (2, 12)	**2**	**SC1** if translated by $\begin{pmatrix}3\\4\end{pmatrix}$, $\begin{pmatrix}4\\-3\end{pmatrix}$ etc.
	(ii)	*Q* with vertices (9, 7), (11, 7), (11, 8)	**2**	**SC1** if reflected in $y = 8$ or √ from *P*
	(iii)	*R* with vertices (7, 7), (7, 5), (6, 5)	**2**	**SC1** if 90° clockwise from *A* or √ from *Q*
	(iv)	*S* with vertices (7, 7), (3, 7), (3, 9)	**2**	**SC1** if different scale factor about *A* or enlargement of triangle *T* s.f. 2 about *B* or *C*
	(b) (i)	Translation $\begin{pmatrix}3\\-4\end{pmatrix}$	**1** **1**	
	(ii)	Enlargement Scale factor 1/2 centre *A*	**1** **1** **1**	
	(c) (i)	90° (anti-clockwise)	**1**	Accept 270° clockwise
	(ii)	(3, 3)	**2**	**B1** for 1 correct
				16

5	**(a) (i)**	Accurate and with arcs	**2**	**B1** without arcs or inaccurate
	(ii)	Accurate quarter-circle r = 5	**2**	**SC1** for r > 4.8 or < 5.2 with compass or correct r but freehand
	(b)	Correct region shaded	**1 or** √	If convinced
	(c) (i)	45° correct 12cm correct	**1** **1**	± 2° ± 1mm
	(ii)	Reasonable tangent	**1**	Must be ruled ±5°
	(iii)	6.8 to 7.2	**1**	Accept f.t. ±0.1
				9
6	**(a)**	3 x 1 x 1.5 + 9 x 1 o.e.	**2**	**M1** for appropriate strategy **M1** (dep.) for correct numbers used
	(b)	3780	**3**	**M1** for volume is area x length, 13.5 x 2.8 or 37.8 **B1** for 280 seen
	(c) (i)	1.92	**2**	**M1** for 2 x 1.2 x 0.8
	(ii)	1 920 000 f.t.	**2**	**M1** for (their) (i) x 10^6 or 200 x 120 x 80
	(iii)	507 f.t.	**2**	**M1** for (c) (ii) ÷ (b) or 507· ... or 508
	(d)	One vertical line drawn	**1**	Within ± 0.2cm of the centre
	(e)	(order) 1 or no symmetry	**1**	
				13
7	**(a) (i)**	84°	**1**	
	(ii)	22°	**1**	
	(b)	11	**1**	Accept 10.8 → 11, 10min 48sec → 11min
	(c)	16°	**1**	
	(d) (i)	32, (16), 8, 4	**3**	**B1** for each
	(ii)	Halving o.e.	**1**	
	(e)	20°	**1**	Allow answer >20 and <22
				9

8	**(a)**	3 new lines from the vertex to the base	**2**	
	(b)	6, 7, $n + 2$	**3**	**B1** for each
	(c)	15, 21, 55	**3**	**B1** for each
	(d)	12	**2**	**SC1** for 10 or 11
				10