

November 2003

INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK: 104

SYLLABUS/COMPONENT: 0580/03, 0581/03

MATHEMATICS

Paper 3 (Core)



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Question Number	Mark Scheme	Part Marks	Notes	Question Total
1 a)	24	1		
b)	25 or 5^2	1		
c)	27 or 3^3	1		
d)	23	1		
	29	1		
e)	26	1	condone 6, 26 or 6×26	
f)	28 cao	1		
g)	21 and 27	1	condone 21×27	8
2 a) i)	1300 or 1 pm	1		
ii)	1030	1	allow 10.30, 10:30 etc	
iii)	9	2	B1 for either 24 or 33 seen or M1 for 2 correct horizontal lines drawn or 24 and 33 marked on axis	
b) i)	4.35, 8.7(0)	2	B1 for one correct	
ii)	Correct straight line (through (10, 8.6 to 8.8)	2	P1 for (5, 4.2 to 4.4) or (10, 8.6 to 8.8)	
iii)	9.2(0) (± 0.1)	1	no ft.	
iv)	575 (± 5)	1	no ft.	10
				18
3 a)	6000	2	M1 for $25 \times 30 \times 8$	
b) i)	art 4400	3	M2 for $\pi \times 10^2 \times 14$ or SC1 for $\pi \times 5^2 \times 14$	
ii)	art 10400	1 $\checkmark$	ft <i>their a + bi</i>	
iii)	art 13.9	3 $\checkmark$	ft for (<i>their bii</i>) $\div (25 \times 30)$ M2 for (<i>their bii</i>) $\div (25 \times 30)$ oe or M1 for (<i>their bi</i>) $\div (25 \times 30)$	9
4 a)	4, 7, 6, 4, 4, 2, 3	2	SC1 for 5 or 6 correct or 7 correct tallies	
b)	1 cao	1		
c)	2 cao	2	M1 for attempt at ranking list seen	
d)	2.5 cao	2	M1 <i>their</i> $\sum f(x) \div \sum f$ imp by 2.5 seen	
e) i)	0.23(3....) or $\frac{7}{30}$	1 $\checkmark$	allow 23% ft from their table	
ii)	0.3 or $\frac{3}{10}$ or $\frac{9}{30}$	1 $\checkmark$	ft from their table	
f)	40	1 $\checkmark$	ft <i>their</i> table $\times 10$. Allow 40/300	10
				19
5 a)	6 -4	1 1		
b) i)	Rotation through 180° about (2.5, 6) o.e.	M1 A1 A1	Half turn M1 A1 , -1 for "symmetry" allow correct description of point	
ii)	Enlargement s.f. 3 centre (1,7)	B1 B1 B1	accept scale 3, $\times 3$ etc accept 'B' for (1,7)	
c) i)	3 cao	1	ignore units	
ii)	1 : 9 cao	2	SC1 for 27 seen M1 for correct answer nlt	
d)	$-\frac{2}{3}, -\frac{6}{9}, -0.66$ or better	2	SC1 for $\frac{2}{3}$ oe or -k	13

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6 a) i)	27	1		
ii)	6	2	M1 for $(39 - 3) \div 6$	
iii)	$\frac{P-3}{6}$ oe	2	M1 for $P-3$ seen or $\frac{P}{6} = \frac{6x+3}{6}$ oe seen	
b) i)	$4x + 3$		M1 for $9x + 4 - 2x - (3x + 1)$ oe allow $9x + 4 - 2x - 3x + 1$ oe for M1 or SC1 for $4x$ or $(+)3$ in answer space	
ii)	10, 16 and 23	3	M1 for $9x + 4 = 49$ oe A1 for $x = 5$	10
				23
7 a) i)	44	2	SC1 for 40 to 48	
ii)	52	3	B1 for 6 or 8 or 12 or 9 or 21 or 28 or 32 or 112 seen +M1 for adding 6 rectangles o.e.	
iii)	cuboid or rectangular prism	1	allow rectangular cuboid but not cube or cubical	
iv)	52	1 ✓	ft from <i>their aii</i> (not strict ft)	
v)	24	2	M1 for $2 \times 3 \times 4$	
b) i)	$2(pq + qr + pr)$ oe as final answer	2	SC1 for pq or qr or pr seen or imp. for both parts. Other letters used consistently MR-1	
ii)	pqr as final answer	2	M1 for pqr seen	13
8 a)	12.5 NB 4021 answer 12.5 working uses 75 and 800	3	M1 for 7.5×12 oe or $80/12$ oe seen +M1 for $\frac{90-80}{80} \times 100$ (explicit) or $\frac{7.50-6.66\dots}{6.66\dots} \times 100$ (explicit) after M0 SC2 for <i>figs</i> 124 to 126 ww or SC1 for 112.5	
b)	120 minutes	3	B1 for $\frac{2}{5}$ or 180 or $\frac{3}{5} \times 300$ seen +M1 for $\frac{2}{5} \times 300$ oe or $300-180$	
c) i)	Accurate $\perp$ bisector of AB, with arcs $\pm 1^\circ \pm 1\text{mm}$ complete inside figure Accurate bisector of $\angle C$ with arcs <i>as above</i>	2 2	SC1 if accurate without arcs <u>or</u> incomplete line. Ignore extra lines SC1 if accurate without arcs <u>or</u> incomplete line <i>as above</i>	
ii)	correct area shaded 	2 ✓	Areas marked as diagram ft from clear intention to draw perp. bisector and angle bisector	12
9 a) i)	150 (km)	1		
ii)	15 000 000 oe (✓)	2	M1 for <i>their a)i)</i> $\times 100 \times 1000$ or SC1 for <i>their a)i)</i> $\times 10^n$ when $n > 0$	
b) i)	1270 to 1320	2	M1 for <i>their</i> $8.6 \times \text{their } 150$ must have some evidence for <i>their</i> 8.6	
ii)	(0)45 to (0)48 oe	1		
iii)	245 to 248	2	SC1 for any answer in the range $180 < x < 270$	8
				20

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10 a)	1 6 15 20 15 6 1 Sum 64 1 7 21 35 35 21 7 1 Sum 128	1 1 2 1	SC1 if 6 or 7 correct	
b) i)	512 accept 2^9	2	SC1 for 256	
ii)	2^n	2	SC1 for 2 x 2 x 2 seen or description	
c)	165 330 462 The first 6 numbers repeated in reverse order	1 1		11
				11
			TOTAL	104