

June 2004

INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK: 70

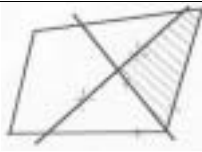
SYLLABUS/COMPONENT: 0580/02, 0581/02

MATHEMATICS

Paper 2 (Extended)



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Question Number	Mark Scheme		Notes
1	3h 20m	1	
2	10.9	1	
3	$0.5^3 < 0.5^2 < \sqrt{0.5}$	2*	M1 for 0.25, 0.7.... and 0.125 seen matched
4	$\frac{1}{2}p^{20}$	2	B1 $\frac{1}{2}$ or p^{20}
5	24	2*	M1 $x/4 = 6$ or $x - 32 = -8$ seen
6	6375 6385	1, 1	B1 correct but reversed
7	7	2*	B1 for one of -7/8, -1/8, -14/16, -2/16, -0.875, -0.125
8 (a)	4	1	
(b)	4	1	Not 90 or $\frac{1}{4}$ turn
9	450	2*	M1 for 3000 x 7.5 x 2/100
10 (a)	80000	1	8×10^4
(b)	8×10^4	1 $\checkmark$	
11	$x = 8 \quad y = 1$	3*	M1 double and add/subtract consistently A1 A1 or M1 rearrange and substitute correctly
12	50, 5, 3	1, 1, 1	
13	$\sqrt{\left(\frac{c-e}{k}\right)}$	3*	R1, R1 for any 2 correct steps moving e, k or $\sqrt{\quad}$ Allow $d^2 = (c - e)/k$ to score R2 as a single step
14 (a)		1	Arc must not continue outside rectangle. Radius of arc 4 cm $\pm$ 1 mm. Ignore shading
(b)	12.6	2*	M1 for $\frac{1}{4} \times \pi \times 4^2$
15	4	3*	M1 Area factor or ratio 9 M1 LSF 3
16 (a)	$a + c$	1	
(b)	$a - c$ or $-c + a$	1	
(c)	$-\frac{1}{2}a - \frac{1}{2}c$ or $-\frac{1}{2}(a + c)$	2*	M1 A0 for answers simplifying to these seen
17		2* 2* 1	M1 2 arcs centre B and D, line drawn A1 M1 construction arcs on AD and CD and centre these for the bisector, line drawn A1 Dependent on at least 1 + 1 in part (a) SC1, SC1 If accurate and no construction arcs
18 (a)	114	2*	M1 $78^2 + 83^2$
(b)	(0)47 cao	3*	M1 for finding one angle by trigonometry correctly M1 for clearly identifying bearing angle Scale drawing and answers with no working score zero
19 (a)	11	1	
(b)	$x + 2$	2*	M1 $\frac{2(x+1)}{2} + 1$
(c)	3	2*	M1 for explicit $g(1)$ or $g^{-1}(x) = \frac{x-1}{2}$
20 (a)	$3(2x - y)(2x + y)$	2	B1 $(6x - 3y)(2x + y)$ o.e.
(b)	(i) $x^2 - 6x + 9$	2*	M1 correct method
	(ii) $p = 3 \quad q = 1$	2	B1, B1

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21	(a)	1.8	2	M1 convincing gradient calculation or use of $a = (v - u)/t$
	(b)	450	2*	M1 for $20 \times 18 + \frac{1}{2} \times 10 \times 18$
	(c)	13	3*	M1 for finding total area under graph ((b) + 135) dep M1 for $\div 45$ If the vertical scale is consistently misread then M4 A0 is available
22	(a)	BA or (iii)	2*	M1 checking order of all 4 matrices correctly
	(b)	$\begin{pmatrix} 38 & 0 \\ 0 & 38 \end{pmatrix}$	2	M1 either column or row correct
	(c)	$\frac{1}{38} \begin{pmatrix} 4 & 6 \\ 5 & -2 \end{pmatrix}$ or $\begin{pmatrix} 4/38 & 6/38 \\ 5/38 & -2/38 \end{pmatrix}$	1	$\begin{pmatrix} 2/19 & 3/19 \\ 5/38 & -1/19 \end{pmatrix}$ or $\begin{pmatrix} 0.105 & 0.158 \\ 0.132 & -0.0526 \end{pmatrix}$
TOTAL			70	