

June 2003

INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK: 70

SYLLABUS/COMPONENT: 0580/02, 0581/02

MATHEMATICS

Paper 2 (Extended)



Page 1	Mark Scheme	Syllabus	Paper
	IGCSE EXAMINATIONS – JUNE 2003	0580/0581	2

Question Number	Mark Scheme	Part Marks	Notes	Question Total
1	$0.049 < 5\% < 5/98$ o.e.	2	M1 for <i>figs</i> 51... seen after 0, SC1 for 2 correct entries	2
2 (a)	7.85 to 8(.00...)	1		2
(b)	56.25 to 57.5(0)	1		
3	194(.4)	2	M1 for $54 \times 3600/1000$ or SC1 for <i>figs</i> 194....seen	2
4	$\begin{pmatrix} -4 \\ -7 \end{pmatrix}$ c.a.o.	1		2
		1		
5	38	2	M1 for $665/(17 + 18)$ s.o.i. by equivalent complete method	2
6	201.25	2	allow 201 or 201.3 in ans. space if 201.25 seen M1 for 17.5×11.5 s.o.i.	2
7	$4 < x < 6$	2	SC1 for either one after 0, M1 for $8 < 2x < 12$ s.o.i.	2
8	$\begin{matrix} \pm 11 & - & \pm 1331 \\ 14 & 196 & - \\ -7 & 49 & - \end{matrix}$	3	2 for 4 or 5 correct 1 for 2 or 3 correct	3
				17
9 (a)	$\frac{1}{6}$ or 0.16(.....) or 0.17	1		3
(b)	art 9.5(°)	2	M1 for correct use of tan o.e.	
10	$\frac{x+11}{(x-3)(x+4)}$ o.e.	3	M1 for denom. $(x-3)(x+4)$ o.e. M1 for $2(x+4) - (x-3)$ o.e.	3
11	integer $\sqrt{(112/7)}$ rational nos. 2.6 4/17 irrational no. $\sqrt{12}$	1 1 1 1	accept $\sqrt{16}$ or 4 accept 0.235 accept 3.46	4
12 (a)	18	2	M1 for $2p + 3p + 90 = 180$ o.e. or SC1 for 36 or 54 seen www.	4
(b)	30	2	M1 for $q + 5q = 180$ o.e. or SC1 for 150 seen	
				14

Page 2	Mark Scheme	Syllabus	Paper
	IGCSE EXAMINATIONS – JUNE 2003	0580/0581	2

13 (a)	100	1		
(b)	1200 $\sqrt{\quad}$	1	$\sqrt{\quad}$ for $(12 \times \text{their } a)$	
(c)	10 < x < 30 ht 30 mm 60 < x < 100 ht 22 mm	1 1		4
14 (a)	10 17 4 -6 -9 0	2	SC1 if 4 or 5 correct	
(b)	$\frac{1}{2} \begin{pmatrix} -2 & -4 \\ 3 & 5 \end{pmatrix}$ oe	2	1 for $\frac{1}{2}$ s.o.i., 1 for $k \begin{pmatrix} -2 & -4 \\ 3 & 5 \end{pmatrix}$ s.o.i.	4
15 (a)	50.3	2	M1 for $\frac{(7087000 - 4714900)}{4714900}$ o.e. must be recognisable complete correct method	
(b) (i)	4710000 or 4.71×10^6	1		
(ii)	7.087×10^6	1	accept 7.09×10^6 , ignore superfluous zeros	4
16 (a)	24.7	2	M1 for $80 \times \sin 18^\circ$ seen	
(b)	46.2	2	M1 for $3(4 + 11.4)$ o.e. (no MRs) 3×3.8 does not imply 11.4	4
				16
17 (a)	Correct shear $\pm 1\text{mm}$	2	M1 for shear with either axis invariant	
(b) (i)	Correct stretch $\pm 1\text{mm}$	2	M1 for stretch with either axis invariant	
(ii)	$\begin{pmatrix} 1 & 0 \\ 0 & 3 \end{pmatrix}$ cao	1		5
18 (a)	1:1000	1		
(b) (i)	accurate perp bisector of AD, with two pairs of arcs	2	SC1 if accurate but no arcs SC1 if accurate arcs but no line	
(ii)	accurate bisector of $\angle BCD$, with two pairs of arcs T marked in correct position	2 1	SC1 if accurate but no arcs SC1 if accurate arcs but no line Indep.	6
				11

Page 3	Mark Scheme	Syllabus	Paper
	IGCSE EXAMINATIONS – JUNE 2003	0580/0581	2

19 (a)	correct demonstration	2	M1 for $20x + 80y$ seen	6
(b)	$x + 2y = 120$ o.e. fully simplified	2	M1 for $25x + 50y = 3000$ seen condone inequality signs for method mark. Ignore \$	
(c)	straight line thr. (120,0) and (0,60) 60 cars, 30 trucks	1√ 1	√ from <i>their b</i>). Line must be complete , and be on given grid also allow 80,20; 100,10; 120,0 or points on the correct section of the line ($60 \leq x \leq 120$)	
				6
20 (a)	art 0.1, 0.3, 0.6, 1, 1.7 and 3	3	SC2 for 4 or 5 correct SC1 for 2 or 3 correct	6
(b)	correct curve drawn	2	P1 for correct or √ 6 or 7 points correctly plotted $\pm 1\text{mm}$	
(c)	$1.6 \leq x < 1.65$	1		
				6

TOTAL MARKS 70