

November 2003

INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK: 70

SYLLABUS/COMPONENT: 0580/02, 0581/02

MATHEMATICS

Paper 2 (Extended)



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	IGCSE EXAMINATIONS – NOVEMBER 2003	0580/0581	2

* indicates that it is necessary to look in the working following a wrong answer

1	0.5 or $\frac{1}{2}$ c.a.o.	1	
2	(-)4504	1	Allow (-)4500
3	(a) 121 (b) $(n + 1)^2$	1 1	Allow 49, 64, 81, 100, 121 $n^2 + 2n + 1$
4	3/2500, 1/8, 0.00126	2*	M1 for all 3 evaluated as decimals (or fractions or percentages or stand. form) SC1 reversed order
5	(a) -1, $\sqrt{36}$ (b) $\sqrt{2}$, $\sqrt{30}$	1 1	Allow -1, ± 6 SC1 (a) -1 and (b) $\sqrt{36}$, $\sqrt{2}$, $\sqrt{30}$
6	$l = mr/5$	2*	M1 for $\frac{240 \times r \times m}{100 (\times 12)}$ o.e.
7	66.7	2	M1 for $\frac{2.4}{3.6} \times 100$ o.e.
8	(a) -1 (b) 5k	1 1	
9	(a) 32000 (b) 254 <u>50</u> 255 <u>50</u>	1 1, 1	SC1 both correct and reversed
10	11.5(2)	3*	M1 $F = kv^2$ M1 $k = 18/40^2$ or better
11	(a) 3110 (b) 322	2* 1 $\checkmark$	M1 for $1936 \div 0.623$ or 1936×1.61 Allow 3107.54, 3107.5, 3108 or 3107.3 SC1 3107 $1000000 \div (a)$
12	(a) 45, 225 (b) 157.5	1, 1 1	Allow 158
13	(a) 5.5 or $5\frac{1}{2}$ (b) 21.5	1 2*	M1 $172 \div 8$
14	(a) $\frac{x+3}{x(x+1)}$ (b) -3	3* 1 $\checkmark$	M1 $3(x+1) - 2x$ M1 denominator $x(x+1)$

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15	(a) angle bisector of angle P	2*	M1 correct construction method A1 $\pm 1^\circ$ SC1 for accurate line but no arcs M1 radius drawn, meets (a) and O labelled. A1 $\pm 1^\circ$
	(b) radius from T or U	2*	
16	(a) A(2,0) B(0,-6)	1, 1	SC1 correct and reversed M1 $(AB^2) = "(0 - 2)^2 + "(-6 - 0)^2"$ from (a)
	(b) 6.32	2*	
	(c) (1,-3)	1 $\checkmark$	
17	(a) 20	1	(b) – (c)
	(b) 98	1	
	(c) 62	1	
	(d) 124	1	
	(e) 36	1 $\checkmark$	
18	(a) 5.8×10^8	1	M1 figs 58 $\div$ figs 59 or figs 9830508 M1 figs 59 $\div$ figs 58×10^n or $\frac{1}{(b)} \times 10^n$ n = 3 or 6
	(b) 98	2*	
	(c) 10200	2*	
19	(a) -6	2	M1 $1 - 2(7/2)$ M1 $\frac{5x}{2}$ o.e., $2 - 4x = x$ or better
	(b) (i) 0.4	2	
	(ii) (0.4, 0.2)	1	
20	(a) (i) $-\frac{2}{3}p + q$	2*	M1 use of AQ = $\pm \frac{2}{3}p \pm q$ or AO + OQ M1 use of BQ = $\pm \frac{3}{4}q \pm p$ or BO + OP M1 $-\frac{1}{4}q + \frac{1}{3}BP$
	(ii) $-\frac{3}{4}q + p$	2*	
	(b) $\frac{1}{3}p - \frac{1}{2}q$	2*	
21	(a) $60x + 80y \leq 1200$ seen	1	Allow $0.6x + 0.8y \leq 12$ M1 intention A1 accurate Dep. on both lines Allow 20, 0 or $20 + 0$
	(b) $x \geq y$	1	
	(c) line $y = x$	1	
	line through (20,0) and (0,15)	2*	
	shading out or R labelled	1	
	(d) 20 c.a.o.	1	
Total 70			

TOTAL MARKS 70