

International General Certificate of Secondary Education

## MARK SCHEME for the May/June 2006 question paper

## 0580 and 0581 MATHEMATICS

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0580/03 and 0581/03 Paper 3, maximum raw mark 104

These mark schemes are published as an aid to teachers and students, to indicate the requirements of the examination. They show the basis on which Examiners were initially instructed to award marks. They do not indicate the details of the discussions that took place at an Examiners' meeting before marking began. Any substantial changes to the mark scheme that arose from these discussions will be recorded in the published *Report on the Examination*.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes must be read in conjunction with the question papers and the *Report on the Examination*.

The minimum marks in these components needed for various grades were previously published with these mark schemes, but are now instead included in the Report on the Examination for this session.

• CIE will not enter into discussion or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the May/June 2006 question papers for most IGCSE and GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.



UNIVERSITY of CAMBRIDGE International Examinations

Page 1	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2006	0580 and 0581	03

Question	Answer	Marks	Comments	
1 (a)(i)	translation	1	must be a single transformation	
1 1-111			not translocation etc.	
	(-7)	1	accept in words 7 left	
	(4)	1	accept in words 4 down	-
1 (a)(ii)	enlargement	1	must be a single transformation	-
	S.F = 3	1		1.00
-	centre (0,0)	1		-
1 (b)	correct rotation	2	SC1 for any rotation of 90 anticlockwise	
		-	or SC1 for correct rotation of 90 clockwise	-
1(0)	correct reflection	2	SC 1 for any reflection in y=k	
1			or SC 1 for correct reflection in x= -2	
				10
		-		
2 (a)	141 ceo	2	М1 for Л x1.5 <sup>2</sup> x 20 (imp.by 141.3)	-
2 (b)	2 h 56 or 2 h 57	3	SC 2 for 176 to 177 mins	-
- (0)	E HOU OF E HOF		M1 for (a) / 0.8	-
		-	SC 1 for fi time in mins correctly changed	1
		1	to hours and minutes.( If more than 1 hour )	
2(c)	36 cao	2	M1 for 12 seen as length of box	
2 (d)(i)	8.6(0) cao	2	M1 for 96 x 0.35 - 25 or 96 x 35 - 2500	-
2 (d)(ll)	34.4 or 34	311	ft is (d)(i) x 4	
12000		1	M1 for (d)(l) / 25	
			M1 (dep) for x 100	1
	1000 million (1000 million)	1	Contraction of the second s	12

Page 2	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2006	0580 and 0581	03

3 (a)	4p - 3q	2	SC1 for either 4p or -3q seen	
		-		
3 (b)	7 cao	3	M1 for 2x - 5 = 9 or 6x - 15 = 27	1
-		-	M1 for 2x = 14 or 6x = 42	-
3 ( c)(i)	2j + 2k	1	or 2 (j+k) or j+j+k+k	-
3 ( c)(ii)	(c )(i) = 72	111		-
3 (c )(iii)	24 cao	2	M1 for substitution of k=2j or j=k/2	
			Implied by 6j=72 , 3j=36 , ans of 12 , 3k=72	
3 (d)	numerator = 1/6	81		-
Territe at	x2	M1	or dividing by 3/6	
	1/3.	A1	SC1 for ans of 1/3 without working	_
3 (d)(ii)	wr+t	2	M1 for wr = s - t	-
		-		14
		-		1-
4 (8)	16,21,26	3	1,1,1	-
4 (b)	101	2	M1 for 5 x 20 + 1 sol.	
4 ( c)	5n +1	2	SC1 for 5n + k seen	
4 (d)	37	2	M1 for -1 then /5	1
		-	or SC1 ft from ( c) = 186 correctly solved.	
		-		9

Page 3	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2006	0580 and 0581	03

				-
5 (a)	200	2	M1 for distance / time	-
5 (b)(i)	2 squares hori.	1		-
	parallel line to 470	1	indep.	
5 (b)(ii)	09 33	111	correct time or ft from graph (b)(i)	
	2	-	allow + or - 3 mins	-
5 ( c)(i)	start at ( 0730 , 470 )	1		-
	end at (0945,0)	1	but must be a straight line	
5 ( c)(ii)	280	16	ft from graph	1
			allow + or - 5 km.	-
5 ( c)(iii)	208 to 209	2	M1 for distance / time	1
10000000				10
				-
		-		-
6 (a)(i)	163.4 or 163	2	M1 for sum of heights / 10	-
6 (a)(ii)	24	2	SC1 for both 178 and 154 seen	-
6 (b)(i)	7 points plotted	P2	P1 for 5 or 6 correct	-
6 (b)(ll)	line of best fit	LI	judge by eye	-
6 (b)(iii)	height for 21cm	1	ft from their line of best fit	-
6 (b)(iv)	positive	1		
6 (b)(v)	correct statement	1	larger hand span greater height or equiv.	10
-		-	the second s	10

Page 4	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2006	0580 and 0581	03

1.1.1				-
7 (a)	m	1		
7 (b)	y = 2x + 5	2	SC1 for 2x or 5 seen	_
7 (c)	8,12,3	3	1,1,1	
7 (d)	9 points plotted	P2 ft	P1ft for 6,7 or 8 correct	
		-	limit for accuracy is 1/2 small square	
-	smooth curve drawn	C1	reasonable curve through the 9 correct points not dependent on P2	
7 (e)	(-3.8, -2.7)	11	allow + or - 0.1 ft is from their graph	-
	(1.8,8.7)	1ft	allow + or - 0.1 ft is from their graph	
		-		11
6 (a)(i)	pentagon	1		
8 (a)(ii)	72	2	M1 for 360/5	
8 (a)(iii)	108	2ft	M1 ft for 180 - (a)(ii)	
8 (b)	(x=) 35	1		1
19-2-1	(y=) 64	2		-
	(z=) 81	2	M1 for 180-(35+64) oe. soi	1
		-		10

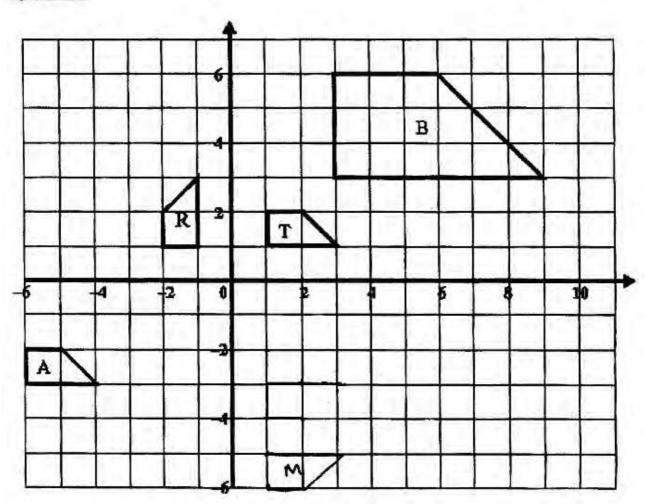
Page 5	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2006	0580 and 0581	03

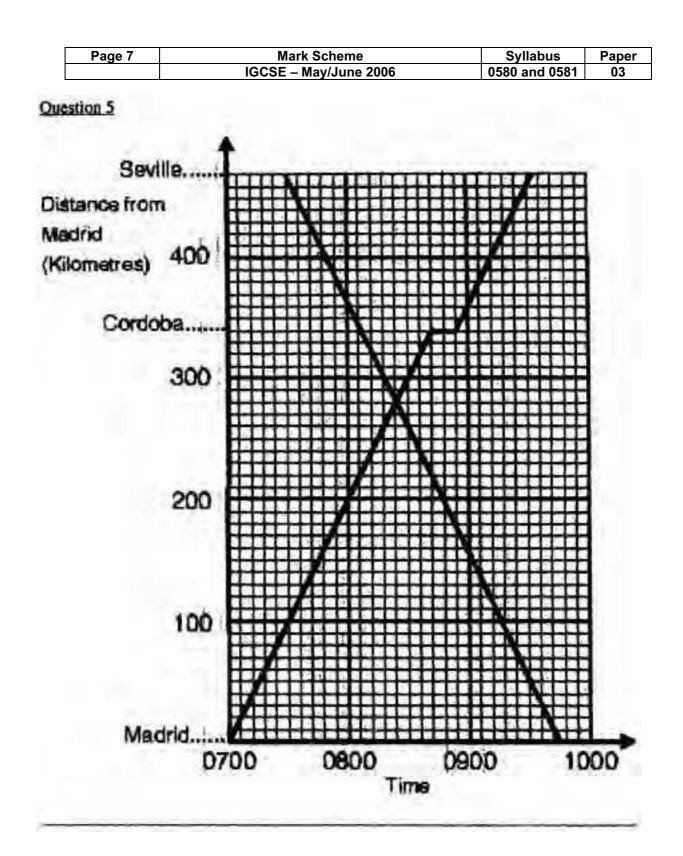
			All and a second	-
9 (a)(i)	85	1	allow + or - 1	-
9 (a)(ii)	72	1	silow + or - 2	
9 (b)(i)	angle bisector	2	must have correct arcs seen	-
- (PA)	constructed		SC1 for any line from A to BC	-
9 (b)(ii)	82 to 84	18	ft is length (+/- 1) from line in (b)(i)	-
9 ( c)	perpendicular	2	must have correct arcs seen	
-	bisecter of AC	1	allow +/- 0.1 and +/- 2 degrees	-
		1	SC1 if inaccurate or correct by eye without construction lines seen	
9 (d)	G	211	G placed anywhere in the correct region	
- (4)			ft only from 2 lines creating a distinct region	1 2 1
				9
		-		-
		-		
10 (a)	p=40 , q=50	1	may be seen on the diagram	
10 (b)	37.4	2	M1 for tanACB = 13/17 oe or better	
10 ( c)	21.4	2	M1 for √(132+172) , √169+289 , √458	
10 (d)	110.5	2	allow 110 or 111	-
-		-	M1 for 0.5 x 13 x 17	-
10 (e)	272 to 273	2ft	ft is 310 - (b)	-
			M1 for 360 - (50 + (b)) oe	9
_		-		104

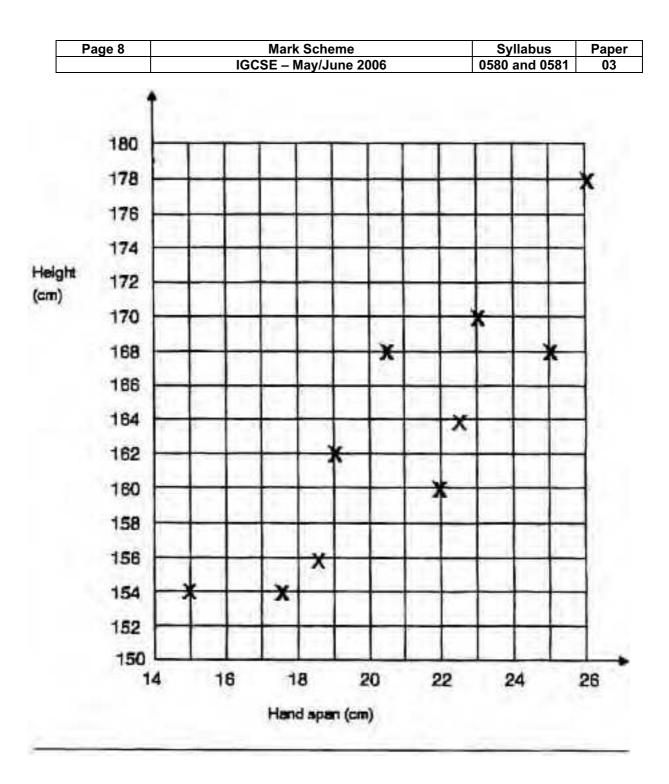
Page 6	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2006	0580 and 0581	03

## **Diagram Solutions**

Question 1







Page 9	Mark Scheme	Syllabus	Paper
	IGCSE – Mav/June 2006	0580 and 0581	03

Question 7

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Page 10	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2006	0580 and 0581	03

Question 9

