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0581 MATHEMATICS

0581/22

Paper 2 (Extended), maximum raw mark 70

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2013 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

Page 2		Mark Scheme	Syllabus	r
		IGCSE – October/November 2013	Syllabus 0581 BDBC	
Abbre	viations		9	nbridge.com
cao	correct ansv	ver only		On
cso	correct solu	tion only		.90
dep	dependent	-		.0.
ît Î		igh after error		50
SW		equent working		
be	or equivaler			
SC	Special Cas			
www	•	ong working		
soi	seen or imp			

Qu.	Answers	Mark	Part Marks
1	19% 0.719 ⁵ $\sqrt{0.038}$ sin 11.4 1/5	2	B1 for decimals [0.19], [0.2], 0.194, 0.197, 0.192 seen
			Or for four in correct order
2	(a) -447	1	
	(b) 2	1	
3	15.7 or 15.70 to 15.71	2	M1 for $2 \times \pi \times 2.5$
4	160	2	M1 for $\frac{8}{18} \times 360$ oe
5	(a)	1	
	(b) Some possible answers:	1	
6	$[\pm]\sqrt{y-4}$ final answer	2	M1 for first move completed correctly M1 for second move completed correctly on answer line
7	170	2	M1 for $\frac{1}{2} \times (12 + 22) \times 10$ oe
8	3619 to 3620	2	M1 for $\frac{1}{2} \times \frac{4}{3} \times \pi \times 12^3$ or better
9	decagon	3	M1 for 360 ÷ 36 oe A1 for 10
10	10.1[0]	3	M1 for 1.3199 and 1.3401 seen and M1 for 500 × 1.3199 or 500 × 1.3401 or for 500 × (<i>their</i> highest – <i>their</i> lowest) oe
11	120	3	M1 for $v = \frac{k}{\sqrt{d}}$ A1 for $k = 600$

	Page 3 Mark Sch		neme Iovember 2013		Syllabus 0581 Approximation	
12	p = 71.4025 cao q = 73.1025 cao		3		Syllabus 0581rd 8.55 seen B ² $[\pi]$ or <i>their</i> UB ² $[\pi]$ 1 for one correct.d 2.90 and 5.20 only of 1.90, 2.90, 5.20 in a list of three or	
3	10[.00]		3	or M1 for two two values from		
14	52		3	B2 for $AOB = 104$ or B1 for OAB or $OBA = 38$		
15	(8, 2)		3	M1 for correct	ly eliminating one variable	
					2 for correct substitution and correct and the other value.	
16	x <6.8		4		wrong inequality or equal as answer.	
10				Or M1 for first mo and M1 for sec	ove completed correctly cond move completed correctly rd move completed correctly	
17	(a) $\begin{pmatrix} 11 & 5 \\ 26 & 30 \end{pmatrix}$		2	SC1 for one co	prrect row or column	
	(b) $\frac{1}{8} \begin{pmatrix} 6 & -1 \\ -4 & 2 \end{pmatrix}$) oe	2	B1 for $k \begin{pmatrix} 6 \\ -4 \end{pmatrix}$		
				or B1 for $\frac{1}{8} \begin{pmatrix} a \\ c \end{pmatrix}$	d	
18	(a) (1.5, 12.5) o	e	2	B1 for either co	oordinate	
	(b) $y = 3x + 8$ of	e	3	-	+ 8 or $y = 3x + c$ or $3x + 8$ ent (or m) = 3 and B1 for $c = 8$	
					1 for 23 = their $m \times 5 + c$ or for 2 = their $m \times -2 + c$ for 12.5 = their $m \times 1.5 + c$	
	y = 3x + 8	bstituting $P(3, 17)$ into e gradient of AP or $BP = 3$	1			

					122	A.
	Page 4 Mark Sch		eme		Syllabus	S. I
IGCSE – October/N			ovemb	er 2013	0581	1020
19	(a) $-2a - 2c$ oe (b) $2a + c$ (c) $-a - c$ oe		2 2 2FT	Syllabusber 20130581M1 for $BO = -a - c$ or for any correct rout unsimplified expressionM1 for any correct route or correct unsimplified expressionFT their (a) or correct answer Or M1 for a correct non direct route from O to E or for correct unsimplified expression or for correct FT		
20	(a) 4.05 to 4.2		1	unsimplified		'
	(b) 2.6 to 2.75	5	2	B1 for 9.6 seen		
	(c) 2.05 to 2.2	25	2	B1 for [UQ] 5.0) to 5.1 and [LQ] 2.	85 to 2.95 seen
	(d) $\frac{5}{48}$		2	M1 for 5		
21	(a) 37.2 or 37	7.17 to 37.19	3	M2 for sin[] = or M1 for $\frac{4}{\sin[]}$	$\frac{4 \times \sin 65}{6} = \frac{6}{\sin 65}$ oe	
	(b) 11.7 or 11	.72 to 11.74	3	M1 for [<i>B</i> =] 16	60 – 65 – <i>their</i> (a) × 6 × sin <i>their</i> 77.8	