

CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

MARK SCHEME for the May/June 2014 series

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 May/June 2014 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

Page 2	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2014	0581	22

Abbreviations

cao	correct answer only
dep	dependent
FT	follow through after error
isw	ignore subsequent working
oe	or equivalent
SC	Special Case
nfww	not from wrong working
soi	seen or implied

Qu		Answers	Mark	Part Marks
1		1.49 or 1.491...	1	
2	(a)	570 000	1	
	(b)	5.69×10^5	1	
3		$[x =] 2, [y =] - 3$	2	B1 B1 or SC1 for reversed answers
4		7.06 or 7.063 to 7.064	2	M1 for $\frac{[]}{8} = \cos 28$ or better
5	(a)	(0, 5)	1	
	(b)	- 1	1	
6		101.4, 102.6	2	M1 for 8.45 and 8.55 seen If 0 scored, SC1 for one correct value in correct position on answer line or for two correct reversed answers
7		$2\frac{1}{2}\%$, 0.2, $\frac{43}{201}$, $\sqrt{0.1}$	2	B1 for 0.3... , 0.21... and 0.025 s een or for three in correct order
8		$[\frac{1}{2} \times 1\frac{1}{2} =] \frac{3}{4}$ oe $\frac{5 \times 2}{6 \times 2}$ and $\frac{3 \times 3}{4 \times 3}$ oe or better $\frac{1}{12}$ oe working must be shown	B1 M1FT A1	

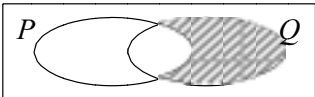
Page 3	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2014	0581	22

9		3.17 or 3.174 to 3.175	3	<p>M2 for $\frac{63-61}{63} \times 100$ oe or $100 - \frac{61}{63} \times 100$ oe</p> <p>or M1 for $\frac{63-61}{63}$ oe or $\frac{61}{63} \times 100$</p>
10	(a)	35	1	<p>M1 for multiplying by 3 or for dividing by $\frac{1}{3}$</p> <p>or</p> <p>M1 for dividing by A</p>
	(b)	$\frac{3V}{A}$ or $3VA^{-1}$	2	
11		460	3	<p>M2 for $\frac{391 \times 100}{(100-15)}$ oe</p> <p>or M1 for recognising 391 as $(100-15)\%$ soi</p>
12		$-\frac{3}{5}$ oe	3	<p>B2 for $5x + 3 = 0$ oe</p> <p>or B1 for a numerator of $3(x+1) + 2x [= 0]$ seen</p>
13		1.6 oe	3	<p>M1 for $w = \frac{k}{\sqrt{x}}$</p> <p>A1 for $k = 8$</p> <p>Alternative method: M2 for $w\sqrt{25} = 4\sqrt{4}$ oe</p>
14	(a)	$\mathbf{p + r}$	1	<p>M1 for correct route from O to M</p> <p>or</p> <p>M1 for $\mathbf{p + \frac{1}{2}their(a)}$</p>
	(b)	$\frac{3}{2} \mathbf{p + \frac{1}{2} r}$	2	
15	(a)	$\begin{pmatrix} 22 & 18 \\ 27 & 31 \end{pmatrix}$	2	B1 for any correct column or row
	(b)	14	1	

Page 4	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2014	0581	22

16	(a)	$2pq(2p-3q)$	2	B1 for $pq(4p-6q)$ or $2q(2p^2-3pq)$ or $2p(2pq-3q^2)$
	(b)	$(u+4t)(1+x)$	2	B1 for $1(u+4t)+x(u+4t)$ or $u(1+x)+4t(1+x)$
17	(a)	$5t^{25}$	2	B1 for $5t^k$ or mt^{25} ($m \neq 0$)
	(b)	-2	1	
	(c)	64	1	
18		576	4	M1 for $\frac{1458}{3456}$ or $\frac{3456}{1458}$ M1 dep for $\sqrt[3]{\text{their fraction}}$ M1 for $(\text{their cube root})^2$
19		$\frac{x-1}{3}$ final answer	4	B2 for $(x-1)(x+7)$ or SC1 for $(x+a)(x+b)$ where $ab = -7$ or $a+b = 6$ B1 for $3(x+7)$
20	(a)	-3	1	
	(b)	$39-7n$ oe	2	M1 for $-7n [+k]$
	(c)	53	2	M1 for <i>their</i> (b) = -332 shown provided <i>their</i> (b) is linear and their answer for (c) is a positive integer
21	(a)	4.47 or 4.472[...]	3	M2 for $\sqrt{6^2-4^2}$ or M1 for $[PM]^2+4^2=6^2$ or 6^2-4^2
	(b)	48.2 or 48.18 to 48.19	3	M2 for $\cos[\text{correct angle}] = \frac{4}{6}$ oe or M1 for recognising a correct angle

Page 5	Mark Scheme	Syllabus	Paper
	IGCSE – May/June 2014	0581	22

22	(a)	i, j	1	
		i, j, k, m, n	1	
		2	1	
	(b)	$\frac{2}{3}$	1	
	(c)		1	
(d)	\subset or \subseteq	1		