Location Entry Codes

UNIVERSITY of CAMBRIDGE
International Examinations

As part of CIE's continual commitment to maintaining best practice in assessment, CIE has begun to use different variants of some question papers for our most popular assessments with extremely large and widespread candidature, The question papers are closely related and the relationships between them have been thoroughly established using our assessment expertise. All versions of the paper give assessment of equal standard.

The content assessed by the examination papers and the type of questions are unchanged.

This change means that for this component there are now two variant Question Papers, Mark Schemes and Principal Examiner's Reports where previously there was only one. For any individual country, it is intended that only one variant is used. This document contains both variants which will give all Centres access to even more past examination material than is usually the case.

The diagram shows the relationship between the Question Papers, Mark Schemes and Principal Examiner's Reports.

Question Paper	Mark Scheme	Principal Examiner's Report
Introduction	Introduction	Introduction
First variant Question Paper	First variant Mark Scheme	First variant Principal Examiner's Report
Second variant Question Paper	Second variant Mark Scheme	Second variant Principal Examiner's Report

Who can I contact for further information on these changes?
Please direct any questions about this to CIE's Customer Services team at: international@cie.org.uk

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2008 question paper

0580, 0581 MATHEMATICS

0580/11, 0581/11 Paper 12 (Core), maximum raw mark 56

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.

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.

- CIE will not enter into discussions or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the May/June 2008 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

Page 2	Mark Scheme	Syllabus	Pap
	IGCSE – May/June 2008	0580, 0581	11

Abbreviations

aro	Answer rounding to
BOD	Benefit of the doubt is to be given to the candidate
CAO	Correct answer **only**
eeo	Each error or omission
NR	Answer space is completely blank
o.e.	or equivalent
SC	Special Case
www	Without wrong working
ft or √	Work has been followed through after an error
dep	Dependent on the previous mark

Qu	Answer	Mark	Part Marks/Notes
1	13	1	
2	2 (h) 16 (min) cao	1	If not in the answer space units must be clear. E.g. Not 2:16 or 2.16.
3	196	1	
4	10	1	
5	$33(\%) < {}^{1}/_{3} < 0.35$	1	Accept the values in any form. ${}^{1}/_{3}$ must be to 3 or more s.f.
6	–14	1	
7	3.62×10^{-3} cao	1	
8	**(a)** 2	1	
	(b) 2	1	
9	($)1278	2	M1 $284 \div 2 \times 9$ or $284 \times \frac{9}{2}$ or better.
10	$11.5 \leqslant h < 12.5$	1 + 1	1 mark for each value in correct place.
11	($)1.40 or 140 cents	2	M1 $2.45 \div (4 + 3)$ implied by 0.35. SC1 for answer 140. For answer in cents units must be stated.
12	**(a)** $\frac{13}{24}$ isw	1	Ignore further attempts at cancelling in **(a)** and **(b)**. Allow equivalent **fractions** in **(a)** and **(b)**. SC1 **Both** correct but written as decimals or %. (Give mark in part **(b)**).
	(b) $\frac{11}{20}$ isw	1	
13	7.5 or 7½	2	M1 ½ × 8 × h = 5 × 6 or better. Implied by $\frac{30}{4}$ or $\frac{15}{2}$ seen.

Page 3	Mark Scheme	Syllabus	Pap
	IGCSE – May/June 2008	0580, 0581	11

14	**(a)** 35.81415(6…) or 35.8188 or 35.796 **(b)** 36 (cm) (Ignore trailing zeros)	1 1 ft	π from calculator value or 3.142 or 3.14 respectively. 36 or follow through from their **(a)** but only if the answer to **(a)** is greater than 1.
15	Vertices (3,1), (5,1), (2,4), (0,4) and ruled parallelogram drawn.	2	M1 3 or 4 vertices correctly plotted. If M0, SC1 Correct reflection in $y = 3$. (3,5), (1,5), (4,2), (6,2).
16	4.578 to 4.58	2	M1 $2.4^2 + 3.9^2$ or better. Square root not essential for M1. Implied by 20.97 or 5.76 + 15.21 seen.
17	($)1.14 or 114 cents	2	M1 $8 \times 0.68 - 2 \times 2.15$ or $8 \times 68 - 2 \times 215$. For answers in cents units must be stated.
18	$3x(2 - 3xy)$ final answer	2	SC1 $3(2x - 3x^2y)$ or $x(6 - 9xy)$ or $3x(2 + 3xy)$ as answers.
19	**(a)** **(i)** –27 **(ii)** –48	1 1	
	(b) z	1	Allow z^1.
20	**(a)** $\sqrt{4}$ or 2	1	
	(b) $\sqrt{81}$ or 9	1	
	(c) $\sqrt{64}$ or 8	1	
	(d) $\sqrt{14}$ or 3.7(4…)	1	
21	**(a)** 25	1	
	(b) 43	1	
	(c) $3n + 10$ oe final ans.	2	SC1 $3n + k$ oe ($k \neq 10$) as answer.
22	**(a)** 12	1	
	(b) **(i)** 0.83(3…) or $\frac{10}{12}$ oe isw **(ii)** 49.8 to 50	1 1 ft	ft 60 × their **(b)(i)** correct to 3sf.
	(c) 46	2	W1 for (CD =) 12 seen in working space, or answer line or between dotted lines at C and D.

23	**(a)** ($)1020	2	M1 for $\frac{4000 \times 3 \times 8.5}{100}$ or SC1 for 5020 final ans.
	(b) ($)1038.85 Allow 1039 or 1038.848 or 1038.8 or 1038.9 or 1038.84	3	M2 for $4000 \times \left(1 + \frac{8}{100}\right)^3$ or better. or M1 for $4000 \times \left(1 + \frac{8}{100}\right)^2$ or better. Alt. M1 for (4000 + 4000 × 0.08) × 0.08. M1 dep for '4665.60 × 0.08. (NB Interest only method)
24	**(a)** **(i)** $\begin{pmatrix} 0 \\ 4 \end{pmatrix}$	2	1 mark for each component.
	(ii) $\begin{pmatrix} -4 \\ 4 \end{pmatrix}$	2	1 mark for each component.
	(b) Line segment from P to (–1, 6)	2	W1 for (–1, 6) indicated or $\begin{pmatrix} -2 \\ 4 \end{pmatrix}$ seen anywhere. If zero, SC1 for line segment from P to (–1, k) or to (k, 6) or a line **through** P and (–1, 6).

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2008 question paper

0580, 0581 MATHEMATICS

0580/12, 0581/12 Paper 12 (Core), maximum raw mark 56

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UNIVERSITY of CAMBRIDGE International Examinations

Page 2	Mark Scheme	Syllabus	Pap
	IGCSE – May/June 2008	0580, 0581	12

Abbreviations

aro	Answer rounding to
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eeo	Each error or omission
NR	Answer space is completely blank
o.e.	or equivalent
SC	Special case
www	Without wrong working
ft or √	Work has been followed through after an error
dep	Dependent on the previous mark

Qu	Answer	Mark	Part Marks/Notes
1	9	1	
2	3 (h) 29 (min) cao	1	If not in the answer space units must be clear. E.g. Not 3:29 or 3.29.
3	196	1	
4	20	1	
5	$33(\%) < {}^{1}/_{3} < 0.35$	1	Accept the values in any form. ${}^{1}/_{3}$ must be to 3 or more s.f.
6	–9	1	
7	3.62×10^{-3} cao	1	
8	**(a)** 2	1	
	(b) 2	1	
9	($)1012	2	M1 $276 \div 3 \times 11$ or $276 \times \frac{11}{3}$ or better.
10	$11.5 \leqslant h < 12.5$	1 + 1	1 mark for each value in correct place.
11	($)1.25 or 125 cents	2	M1 $2.25 \div (5 + 4)$ implied by 0.25. SC1 for answer 125. For answer in cents units must be stated.
12	**(a)** $\frac{17}{29}$ isw	1	Ignore further attempts at cancelling in **(a)** and **(b)**. Allow equivalent **fractions** in **(a)** and **(b)**. SC1 **Both** correct but written as decimals or %. (Give mark in part **(b)**).
	(b) $\frac{13}{20}$ isw	1	
13	13.5 or 13½	2	M1 $½ \times 8 \times h = 6 \times 9$ or better. Implied by $\frac{54}{4}$ or $\frac{27}{2}$ seen.

Page 3	Mark Scheme	Syllabus	Pap
	IGCSE – May/June 2008	0580, 0581	12

14	**(a)** 32.67256(3…) or 32.6768 or 32.656 **(b)** 33 (Ignore trailing zeros)	1 1 ft	π from calculator value or 3.142 or 3.14 respectively. 33 or follow through from their **(a)** but only if the answer to **(a)** is greater than 1.
15	Vertices (3,1), (5,1), (2,4), (0,4) and ruled parallelogram drawn.	2	M1 3 or 4 vertices correctly plotted. SC1 Correct reflection in $y = 3$. (3,5), (1,5), (4,2), (6,2).
16	4.4598 to 4.4611	2	M1 $1.5^2 + 4.2^2$ or better. Square root not essential for M1. Implied by 19.89 or 2.25 + 17.64 seen.
17	($)1.14 or 114 cents	2	M1 $8 \times 0.68 - 2 \times 2.15$ or $8 \times 68 - 2 \times 215$. For answers in cents units must be stated.
18	$3x(2 - 3xy)$ final answer	2	SC1 $3(2x - 3x^2y)$ or $x(6 - 9xy)$ or $3x(2 + 3xy)$ as answers.
19	**(a)** **(i)** –64 **(ii)** –144	1 1	
	(b) z	1	Allow z^1.
20	**(a)** $\sqrt{4}$ or 2	1	
	(b) $\sqrt{81}$ or 9	1	
	(c) $\sqrt{64}$ or 8	1	
	(d) $\sqrt{14}$ or 3.7(4…)	1	
21	**(a)** 25	1	
	(b) 43	1	
	(c) $3n + 10$ oe final ans.	2	SC1 $3n + k$ oe ($k \neq 10$) as answer.
22	**(a)** 12	1	
	(b) **(i)** 0.83(3…) or $\frac{10}{12}$ oe isw **(ii)** 49.8 to 50	1 1 ft	ft 60 × their **(b)(i)** correct to 3sf.
	(c) 46	2	W1 for (CD =) 12 seen in working space, or answer line or between dotted lines at C and D.

23	**(a)** 1332	2	M1 for $\frac{6000 \times 3 \times 7.4}{100}$ or SC1 for 7332 final ans.
	(b) 1350.26 Allow 1350 or 1350.258 or 1350.25 or 1350.2 or 1350.3	3	M2 for $6000 \times \left(1 + \frac{7}{100}\right)^3$ or better. or M1 for $6000 \times \left(1 + \frac{7}{100}\right)^2$ or better. Alt. M1 for (6000 + 6000 × 0.07) × 0.07. M1 dep for '6869.4' × 0.07. (NB Interest only method)
24	**(a) (i)** $\begin{pmatrix} 0 \\ 4 \end{pmatrix}$	2	1 mark for each component.
	(ii) $\begin{pmatrix} -4 \\ 4 \end{pmatrix}$	2	1 mark for each component.
	(b) Line segment from P to (–1, 6)	2	W1 for (–1, 6) indicated or $\begin{pmatrix} -2 \\ 4 \end{pmatrix}$ seen anywhere. If zero, SC1 for line segment from P to (–1, k) or to (k, 6) or a line through P and (–1, 6).