

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](mailto:international@cie.org.uk)

**UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS**  
International General Certificate of Secondary Education

**MARK SCHEME for the October/November 2008 question paper**

**0580 and 0581 MATHEMATICS**

**0580/11 and 0581/11**

Paper 11 (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 October/November 2008 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.



<b>Page 2</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>IGCSE – October/November 2008</b>	<b>0580 and 0581</b>	<b>11</b>

**Abbreviations**

- cao correct answer only
- ft work has been followed through after an error
- isw ignore subsequent working
- oe or equivalent
- SC Special Case
- soi seen or implied
- ww without working

<b>Qu.</b>	<b>Answers</b>	<b>Mark</b>	<b>Part Marks</b>
<b>1</b>	28	1	
<b>2</b>	2	1	
<b>3</b>	-13	1	
<b>4</b>	6.5	1	
<b>5</b>	12 – 13x cao final answer	2	W1 for (+)12 or -13x seen anywhere
<b>6</b>	11.5	2	M1 for $4.6 \times$ figs 25 or W1 for figs 115
<b>7 (a)</b>	>	1	
<b>(b)</b>	=	1	
<b>8</b>	15.77 cao	2	M1 for $20 \div 1.2685$ or W1 for answers from 15 to 17
<b>9</b>	(x=) 10.2 or $10 \frac{1}{5}$ isw	2	M1 for $(53 - 2) \div 5$ soi
<b>10</b>	$6650 \leq L < 6750$	1, 1	1 mark for each value correctly placed. SC1 both correct but reversed
<b>11 (a)</b>	12	1	
<b>(b)</b>	24	1	
<b>12</b>	(k=) 8	2	M1 for $0 = 2 \times 4 - k$ or better
<b>13 (a)</b>	$5.78 \times 10^{-3}$	1	
<b>(b)</b>	0.0058	1	Accept $5.8 \times 10^{-3}$
<b>(c)</b>	0.01	1	Accept $1 \times 10^{-2}$
<b>14</b>	$\frac{15}{4}$ seen  $\frac{5}{8} \times$ their $\frac{4}{15}$  $\frac{1}{6}$	W1  M1  A1	Must be inversion of an improper fraction Can be implied by $\frac{5}{8} \div \frac{15}{4} = \frac{20}{120}$ .

Page 3	Mark Scheme	Syllabus	Paper
	IGCSE – October/November 2008	0580 and 0581	11

Qu.	Answers	Mark	Part Marks
15 (a) (b) (c)	Point marked at (3, 2) (-2, 1) $-0.5$ or $-\frac{1}{2}$	1 1 1	Missing label not penalised. More than 1 point seen, must be labelled By eye 2mm
16 (a) (b) (c)	1 $q^{11}$ $r^{-6}$ or $\frac{1}{r^6}$	1 1 1	
17 (a)  (b)	12 seen on diagram at <b>A and B</b> or $180^\circ - 168^\circ = 12^\circ$ . <b>AND</b> $12 + 78 (= 90)$  $123^\circ$	1  2	Allow $168^\circ + 12^\circ = 180^\circ$ only Allow $90^\circ - 78^\circ = 12^\circ$ or $90^\circ - 12^\circ = 78^\circ$ if the first condition is satisfied W1 for angle $BAC$ (or angle $BCA$ ) = $45^\circ$
18 (a)  (b)	1083300 to 1084000 or 1080000 or 1083000 Final answer Their (a) $\div 10^6$ evaluated	2  1ft	M1 for $\pi \times 50^2 \times 138$ or $\pi \times 0.5^2 \times 1.38$
19 (a)  (b)	64  172	2  2ft	M1 for $2 \times (10 + 22)$ or $22 + 10 + 14 + 6 + (22 - 14) + (10 - 6)$ M1 for $(22 \times 10) - 6 \times '8'$ or $(140 \times 10) + '8' \times '4'$ or $14 \times 6 + 22 \times '4'$
20 (a)  (b) (i)  (ii)  (iii)	15(%) or 0.15 or $\frac{15}{100}$ oe  $\frac{4}{15}$ oe cao  $\frac{10}{15}$ oe cao  0 or $\frac{0}{15}$ cao	1  1  1  1	isw for change of form or cancelling only in all parts. Not ratio. Allow 0.267 or 0.266(6...) or % form Minimum 3 significant figures Allow 0.667 or 0.666(6...) or % form Minimum 3 significant figures Consistent use of wrong denominator in all of (b), -1 once. Allow nil, none or zero only. No other denominator allowed.
21 (a) (b) (c)	Similar 15 292	1 2 2	M1 for $10 \div 8 \times 12$ or equivalent method M1 for $360 - 68$
22 (a)  (b)	45 5 75 All sectors correct $\pm 2^\circ$ 'Correctly' labelled	1 1 1ft 1ft 1	Their '5' $\times 15$ or $120^\circ - '45'$ Ft provided angles total $360^\circ$ Independent. Labelling of the other 3 sectors.

**UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS**  
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## **MARK SCHEME for the October/November 2008 question paper**

### **0580 and 0581 MATHEMATICS**

**0580/12 and 0581/12**

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.

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<b>Page 2</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>IGCSE – October/November 2008</b>	<b>0580 and 0581</b>	<b>12</b>

**Abbreviations**

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<b>Qu.</b>	<b>Answers</b>	<b>Mark</b>	<b>Part Marks</b>
<b>1</b>	36	1	
<b>2</b>	2	1	
<b>3</b>	-13	1	
<b>4</b>	7.4	1	
<b>5</b>	$10 - 17x$ cao final answer	2	W1 for (+)10 or $-17x$ seen anywhere
<b>6</b>	9.5	2	M1 for $3.8 \times$ figs 25 or W1 for figs 95
<b>7 (a)</b>	>	1	
<b>(b)</b>	=	1	
<b>8</b>	23.65 cao	2	M1 for $30 \div 1.2685$ or W1 for answers from 23 to 25
<b>9</b>	(x=) 10.6 or $10\frac{3}{5}$ isw	2	M1 for $(54 - 1) \div 5$ soi
<b>10</b>	$6650 \leq L < 6750$	1, 1	1 mark for each value correctly placed. SC1 both correct but reversed
<b>11(a)</b>	12	1	
<b>(b)</b>	24	1	
<b>12</b>	(k=) 8	2	M1 for $0 = 2 \times 4 - k$ or better
<b>13(a)</b>	$6.56 \times 10^{-3}$	1	
<b>(b)</b>	0.0066	1	Accept $6.6 \times 10^{-3}$
<b>(c)</b>	0.01	1	Accept $1 \times 10^{-2}$

Page 3	Mark Scheme	Syllabus	Paper
	IGCSE – October/November 2008	0580 and 0581	12

Qu.	Answers	Mark	Part Marks
14	$\frac{20}{3}$ seen	W1	
	$\frac{4}{9} \times \text{their } \frac{3}{20}$	M1	Must be inversion of an improper fraction Can be implied by $\frac{4}{9} \div \frac{20}{3} = \frac{12}{180}$
	$\frac{1}{15}$	A1	ww no marks
15(a)	Point marked at (3, 2)	1	Missing label not penalised. More than 1 point seen, must be labelled. By eye 2mm
(b)	(-2, 1)	1	
(c)	-0.5 or $-\frac{1}{2}$	1	
16(a)	1	1	
(b)	$q^8$	1	
(c)	$r^{-8}$ or $\frac{1}{r^8}$	1	
17(a)	12 seen on diagram at <b>A and B</b> or $180^\circ - 168^\circ = 12^\circ$ . <b>AND</b> $12 + 78 (= 90)$	1	Allow $168^\circ + 12^\circ = 180^\circ$ Allow $90^\circ - 78^\circ = 12^\circ$ or $90^\circ - 12^\circ = 78^\circ$ If the first condition is satisfied W1 for angle <i>BAC</i> (or angle <i>BCA</i> ) = $45^\circ$
(b)	$123^\circ$	2	
18(a)	1458216 to 1459145 or 1460000 or 1459000 Final answer	2	M1 for $\pi \times 60^2 \times 129$ or $\pi \times 0.6^2 \times 1.29$
(b)	Their (a) $\div 10^6$ evaluated	1ft	
19(a)	64	2	M1 for $2 \times (10 + 22)$ or $22 + 10 + 14 + 6 + (22 - 14) + (10 - 6)$ M1 for $(22 \times 10) - 6 \times '8'$ or $(140 \times 10) + '8' \times '4'$ or $14 \times 6 + 22 \times '4'$
(b)	172	2ft	

Page 4	Mark Scheme	Syllabus	Paper
	IGCSE – October/November 2008	0580 and 0581	12

Qu.	Answers	Mark	Part Marks
<b>20 (a)</b>	15(%) or 0.15 or $\frac{15}{100}$ oe	1	isw for change of form or cancelling only in all parts. Not ratio.
<b>(b) (i)</b>	$\frac{4}{15}$ oe cao	1	Allow 0.267 or 0.266(6...) or % form Minimum 3 significant figures
<b>(ii)</b>	$\frac{10}{15}$ oe cao	1	Allow 0.667 or 0.666(6...) or % form Minimum 3 significant figures Consistent use of wrong denominator in all of <b>(b)</b> , –1 once.
<b>(iii)</b>	0 or $\frac{0}{15}$ cao	1	Allow nil, none or zero only. No other denominator allowed
<b>21 (a)</b>	Similar	1	
<b>(b)</b>	19.95 to 20.04	2	M1 for $12 \div 9 \times 15$ or equivalent method
<b>(c)</b>	297	2	M1 for $360 - 63$
<b>22 (a)</b>	45	1	
	5	1	
	75	1ft	Their '5' $\times 15$ or $120^\circ - '45'$
<b>(b)</b>	All sectors correct $\pm 2^\circ$	1ft	Ft provided angles total $360^\circ$
	'Correctly' labelled	1	Independent. Labelling of the other 3 sectors.