

## **MARK SCHEME for the October/November 2013 series**

### **0581 MATHEMATICS**

**0581/32**

Paper 3 (Core), maximum raw mark 104

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.

<b>Page 2</b>	<b>Mark Scheme</b>	<b>Syllabus</b>	<b>Paper</b>
	<b>IGCSE – October/November 2013</b>	<b>0581</b>	<b>32</b>

Abbreviations

cao correct answer only  
 cso correct solution only  
 dep dependent  
 ft follow through after error  
 isw ignore subsequent working  
 oe or equivalent  
 SC Special Case  
 www without wrong working

Question.	Answers	Mark	Part Marks
<b>1</b>	<b>(a)</b> Scalene [triangle]	<b>1</b>	
	<b>(b)</b> Congruent	<b>1</b>	
	<b>(c) (i)</b> translation $\begin{pmatrix} -6 \\ 2 \end{pmatrix}$	<b>1</b> <b>1</b>	Accept 6 left and 2 up.
	<b>(ii)</b> rotation 180° [Centre] ( 0,0 )	<b>1</b> <b>1</b> <b>1</b>	<b>SC1, 1, 1</b> for Enlargement, [SF=] -1,(0,0)
	<b>(d)</b> Image (1, -2), (4, -2), (2, -3)	<b>1</b>	
	<b>(e)</b> Image (2, 4), (8, 4), (4, 6)	<b>2</b>	<b>B1</b> for 2 times enlargement, incorrect centre
	<b>(f)</b> 6	<b>2FT</b>	<b>M1</b> for $0.5 \times \textit{their} \text{ base} \times \textit{their} \text{ height}$

Page 3	Mark Scheme	Syllabus	Paper
	IGCSE – October/November 2013	0581	32

2	<p>(a) (i) <math>\frac{5}{9}</math></p> <p>(ii) 60</p> <p>(b) 1080</p> <p>(c) <math>0.85 \times 3450</math> Or <math>3450 - 0.15 \times 3450</math></p> <p>(d) 32</p>	2  2  3  2  3	<p><b>B1</b> for <math>\frac{80}{144}</math> or better or 0.556 or 0.555... or answer <math>\frac{4}{9}</math></p> <p><b>M1</b> for <math>144 \div (6+5+1)</math> or <math>144 \div 12</math></p> <p><b>M1</b> for <math>2 \div 5 \times 5200</math> soi by 2080 And <b>M1</b> for <i>their</i> <math>2080 + 24 \times 175 - 5200</math> or better</p> <p><b>B1</b> for 0.85 or for <math>0.15 \times 3450</math></p> <p><b>M2</b> for <math>\frac{3300 - 2500}{2500} \times 100</math> oe or <math>(\frac{3300}{2500} - 1) \times 100</math> oe</p> <p><b>Or</b> <b>B1</b> for 800 or <math>\frac{3300 - 2500}{2500}</math> or <math>\frac{3300}{2500}</math> or 1.32 or 132 or 0.32</p>
3	<p>(a) (i) <math>4n + 21</math>, final answer</p> <p>(ii) <math>5n + 3 = 3n + 27</math> [<math>n =</math>] 12</p> <p>(iii) 126</p> <p>(b) (i) yellow</p> <p>(ii) arrow pointing at 0.5</p> <p>(iii) <math>\frac{4}{20}</math> o.e. or 0.2 or 20%</p> <p>(iv) <math>\frac{16}{20}</math> o.e. or 0.8 or 80%</p>	1  1  2  <b>1FT</b>  1  1  1  <b>1FT</b>	<p><b>M1</b> for <math>5n - 3n = 27 - 3</math> or better</p> <p><b>SC1</b> for 4 out of 20 and 16 out of 20</p>

Page 4	Mark Scheme	Syllabus	Paper
	IGCSE – October/November 2013	0581	32

4	(a) (i) 370 to 380	2	<b>B1</b> for 7.4 to 7.6 seen  <b>B1</b> for one correct arc or C correct with no arcs	
	(ii) [0]36 to [0]40	1		
	(iii) Intersecting arcs: Arc centre A radius 10.5 cm Arc centre B radius 7 cm	2		
	(iv) 300 to 310	1FT		
	(b) 11 25	3		
	(c) 4200	1		
5	(d) 13.1	2	<b>M2</b> for $525 \div 700 \times 60$ or better soi Or <b>M1</b> for $525 \div 700$ soi by 0.75  <b>B1</b> for 13 100 or 13.107 or 13.100 Or <b>B1FT</b> <i>their</i> conversion to 4 or more sig figs seen and then correctly rounded to 3 sig figs	
	(e) 8515	1		
	(a) -1 -1.25 2.5 1	2		<b>B1</b> for two correct
	(b) 10 correctly plotted points  Two correct smooth curves through all correct points and not across y-axis	<b>P3FT</b>  <b>C1</b>		<b>P2FT</b> for 8 or 9 correctly plotted <b>P1FT</b> for 6 or 7 correctly plotted
	(c) 1.15 to 1.35	1FT		
(d) (i) Line $x = -3.5$ ruled	1			
	(ii) (5, -3) plotted	1		
	(iii) line $y = -3$ ruled	1FT		

Page 5	Mark Scheme	Syllabus	Paper
	IGCSE – October/November 2013	0581	32

6	(a) (i) 26	1	<b>B1</b> for each	
	(ii) 16	1		
	(iii) 17 –3	2		
	(b) (i) 9 17	2		<b>B1</b> for one correct in correct position or FT for fourth term
	(ii) odd	1		
	(c) (i) 23	1		<b>B1</b> for $5n + k$ , $jn + 3$ $j \neq 0$ Or $5n + 3$ oe not as final answer
(ii) $5n + 3$ oe final answer	2			
(iii) 19	2	<b>M1FT</b> for <i>their</i> (c)(ii) = 98 if linear soi		
7	(a) 23	2	<b>M1</b> for clear attempt to find middle If zero scored then <b>SC1</b> for 40	
	(b) [Affected by an] extreme value oe	1		
	(c) 40.9	2	<b>M1</b> for $(36+38+42+36+45+42+32+40+40+46+56+38) \div 12$ implied by $491 \div 12$ If zero scored then <b>SC1</b> for 26.25 or 26.3	
	(d) (i) 6 points correctly plotted	<b>P2</b>		<b>P1</b> for 4 or 5 correctly plotted
	(ii) positive	1		
	(iii) line of best fit ruled and continuous	1		dep on at least 11 points on graph
(iv) No, [estimate unreliable as] outside range [of data]	1			

Page 6	Mark Scheme	Syllabus	Paper
	IGCSE – October/November 2013	0581	32

8	(a) 7 Pentagon	1 1	
	(b) (i) trapezium	1	
	(ii) $125^\circ$	1	
	(iii) $32^\circ$	2	<b>M1FT</b> for $180 - 125 - 23$ or better or $180 - \textit{their } 125 - 23$ or better
	(c) (i) $90^\circ$ angle [in a] semicircle [=90°]	1 1	
	(ii) $55^\circ$	1	
	(iii) $93^\circ$	3	<b>M2</b> for $90 - 52$ or $180 - 90 - 52$ or 38 If <b>M0</b> then <b>B1</b> for angle $CAD = 90^\circ$ indicated
9	(a) (i) 7	1	Allow -7
	(ii) -32	1	
	(iii) -11	1	
	(b) (i) $1.05 \times 10^7$	1	
	(ii) 4 580 000	1	
	(iii) Kaliningrad	1	
	(iv) $2.7 \times 10^5$	2	<b>B1</b> for figs 27
10	(a) 3.5	2	<b>M1</b> for $6x - 12 = 9$ or better or $x - 2 = \frac{9}{6}$ or better
	(b) $2n - 18$ or $2(n - 9)$ final answer	2	<b>B1</b> for $8n - 8$ or $-6n - 10$ or $2n$ or $-18$
	(c) $5p^2(2 + p)$ final answer	2	<b>M1</b> for any correct incomplete factorisation or $5p^2(2 + p)$ seen in working