CAMBRIDGE INTERNATIONAL EXAMINATIONS International General Certificate of Secondary Education

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0580 MATHEMATICS

0580/43

Paper 4 (Extended), maximum raw mark 130

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.



			Syllabus 0580 Numathscioud.com
F	Page 2	Mark Scheme	Syllabus 7. 2
		IGCSE – October/November 2013	0580
Abbre	eviations		Aths is
cao	correct answ	•	
cso	correct solu	tion only	4 _c
dep	dependent		
ft	follow through	ugh after error	-0n
isw	ignore subs	equent working	
oe	or equivale	nt	
SC	Special Cas		
www	without wro	ong working	
art	anything ro	unding to	

soi seen or implied

Qu.	Answers	Mark	Part Marks
1 (a) (i)	45	2	M1 for $5 \times 63 \div 7$
(ii)	20	2	M1 for $5 \times 56 \div 14$
(iii)	23.4 or 23.38 to 23.41	3	M2 for $\frac{13 \times 4.9 - 48.8}{13 \times 4.9} \times 100$
			or $\frac{4.9 - 48.8 \div 13}{4.9} \times 100$ Or
			M1 for $\frac{13 \times 4.9 - 48.8}{13 \times 4.9}$ or $\frac{48.8}{13 \times 4.9} \times 100$ or 76.6[]
(b)	128	4	Using fractions (percentages / decimals): M1 for $\frac{3}{4} \times \frac{3}{8} \left[= \frac{9}{32} \right]$ or $\frac{75}{100} \times 37.5$ [= 28.125%]
			A1 for $\frac{9}{32}$ or 28.125[%]
			M1 for $36 \div \frac{9}{32}$ oe
			or $36 \times \frac{100}{28.125}$ oe
			Partial percentages
			M1 for (Remaining) $\frac{100 \times 36}{37.5}$ [= 96]
			A1 for 96
			M1 for $96 \div \frac{75}{100}$ oe
			SC1 for 288

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(b)109 or 108.7 to 108.8 nfww4M2 for 119.92 + 55² - 2 × 119.9 × 55cos65 AI for 118.27[] or 118.34 to 118.35[] or MI for inplicit version(c)1970 or 1969 to 1970.42MI for $\frac{1}{2} \times 119.9 \times 62 \times \sin 32$ (d)22300 or 22310 to 223203M2 for (<i>livir</i> (c) + 0.5 × 55 × 119.9 × sin65) × 4.5 or MI for <i>their</i> (c) + 0.5 × 55 × 119.9 × sin65)3(a) $9 - 2x, 7 - 2x$ oe2BI for each, accept in any order(b) $x(9 - 2x)(7 - 2x)$ $4x^3 - 32x^2 + 63x$ MI FT AICorrect expansion and simplification with no errors(c)24202BI for each correct value(d)Correct curve3B2FT for 5 correct plots or BIFT for 3 or 4 correct plots(e)0.65 to $0.75 \le x \le 2$ oe2BI for each pair(f)(i)36 to 371(ii)1.2 to 1.414(a)48 and 84 66 and 662(b)5402MI for 3×180 or $(2 \times 5 - 4) \times 90$ or $5 \times (180 - 360 + 5)$ oe(d)(ii) $2x + 5 + 3y - 20 + 4x - 5 + x + y - 1$ 1All or $7 \times 360 - their 540 - 360$ 1(iii) $[x =] 30, [y =] 45 $ nfww4MI for correct multiplication MI for correct multiplication AI $x = 30$ or $y = 45$ (iii) $[x =] 30, [y =] 45 $ nfww4MI for correct substitution to find the						Syllabus 7.7, 7				
(b)109 or 108.7 to 108.8 nfww4M2 for 119.92 + 55² - 2 × 119.9 × 55cos65 AI for 118.27[] or 118.34 to 118.35[] or MI for inplicit version(c)1970 or 1969 to 1970.42MI for $\frac{1}{2} \times 119.9 \times 62 \times \sin 32$ (d)22300 or 22310 to 223203M2 for (<i>livir</i> (c) + 0.5 × 55 × 119.9 × sin65) × 4.5 or MI for <i>their</i> (c) + 0.5 × 55 × 119.9 × sin65)3(a) $9 - 2x, 7 - 2x$ oe2BI for each, accept in any order(b) $x(9 - 2x)(7 - 2x)$ $4x^3 - 32x^2 + 63x$ MI FT AICorrect expansion and simplification with no errors(c)24202BI for each correct value(d)Correct curve3B2FT for 5 correct plots or BIFT for 3 or 4 correct plots(e)0.65 to $0.75 \le x \le 2$ oe2BI for each pair(f)(i)36 to 371(ii)1.2 to 1.414(a)48 and 84 66 and 662(b)5402MI for 3×180 or $(2 \times 5 - 4) \times 90$ or $5 \times (180 - 360 + 5)$ oe(d)(ii) $2x + 5 + 3y - 20 + 4x - 5 + x + y - 1$ 1All or $7 \times 360 - their 540 - 360$ 1(iii) $[x =] 30, [y =] 45 $ nfww4MI for correct multiplication MI for correct multiplication AI $x = 30$ or $y = 45$ (iii) $[x =] 30, [y =] 45 $ nfww4MI for correct substitution to find the				IGCSE – October/N	lovembe	ovember 2013 0580				
(b)109 or 108.7 to 108.8 nfww4M2 for 119.92 + 55² - 2 × 119.9 × 55cos65 AI for 118.27[] or 118.34 to 118.35[] or MI for inplicit version(c)1970 or 1969 to 1970.42MI for $\frac{1}{2} \times 119.9 \times 62 \times \sin 32$ (d)22300 or 22310 to 223203M2 for (<i>livir</i> (c) + 0.5 × 55 × 119.9 × sin65) × 4.5 or MI for <i>their</i> (c) + 0.5 × 55 × 119.9 × sin65)3(a) $9 - 2x, 7 - 2x$ oe2BI for each, accept in any order(b) $x(9 - 2x)(7 - 2x)$ $4x^3 - 32x^2 + 63x$ MI FT AICorrect expansion and simplification with no errors(c)24202BI for each correct value(d)Correct curve3B2FT for 5 correct plots or BIFT for 3 or 4 correct plots(e)0.65 to $0.75 \le x \le 2$ oe2BI for each pair(f)(i)36 to 371(ii)1.2 to 1.414(a)48 and 84 66 and 662(b)5402MI for 3×180 or $(2 \times 5 - 4) \times 90$ or $5 \times (180 - 360 + 5)$ oe(d)(ii) $2x + 5 + 3y - 20 + 4x - 5 + x + y - 1$ 1All or $7 \times 360 - their 540 - 360$ 1(iii) $[x =] 30, [y =] 45 $ nfww4MI for correct multiplication MI for correct multiplication AI $x = 30$ or $y = 45$ (iii) $[x =] 30, [y =] 45 $ nfww4MI for correct substitution to find the	2	(a)	119.94	l[] nfww	3	M2 for $\frac{62 \times \sin 122}{\sin 26}$ or M1 for $\frac{AC}{\sin 122} = \frac{62}{\sin 26}$ oe				
(d) 22300 or 22310 to 22320 3 M2 for (their (c) + 0.5 × 55 × 119.9., × sin65) × 4.5 or M1 for their (c) + 0.5 × 55 × 119.9., × sin65) 3 (a) $9 - 2x$, $7 - 2x$ oe 2 B1 for each, accept in any order (b) $x(9 - 2x)(7 - 2x)$ M1FT Correct expansion and simplification with no errors (c) 24 20 2 B1 for each correct value (d) Correct curve 3 B2FT for 5 correct plots or B1FT for 3 or 4 correct plots (e) 0.65 to 0.75 ≤ $x ≤ 2$ oe 2 B1 for each pair (ii) 1.2 to 1.4 1 4 (a) 48 and 84 66 and 66 2 M1 for 3 × 180 or (2 × 5 - 4) × 90 or 5 × (180 - 360 + 5) oc (c) 1620 2 M1 for 7 × 360 - their 540 - 360 A1 (ii) 2x + 5 + 3y - 20 + 4x - 5 + x + y - 10 = 360 oe 1 A1 for correct multiplication but not $7x + 4y - 30 = 360$ (iii) $[x =] 30, [y =] 45$ nftw 4 M1 for correct multiplication $A1$ $x = 30$ or $y = 45$ If 0 scored SC1 for correct substitution to find the		(b)	109 o	r 108.7 to 108.8 nfww	4	M2 for $119.9^2 + 55^2 - 2 \times 119.9 \times 55\cos 65$ A1 for $11827[\cdot]$ or 11834 to $11835[\cdot]$				
or MI for their (c) + 0.5 × 55 × 119.9 × sin65 3 (a) $9-2x$, $7-2x$ oe 2 BI for each, accept in any order (b) $x(9-2x)(7-2x)$ $4x^3-32x^3+63x$ MIFT AI Correct expansion and simplification with no errors (c) 24 20 2 BI for each correct value (d) Correct curve 3 B2FT for 5 correct plots or BIFT for 3 or 4 correct plots (e) 0.65 to $0.75 \le x \le 2$ oe 2 BI for each pair (ii) 1.2 to 1.4 1 4 (a) 48 and 84 66 and 66 2 BI for each pair (b) 540 2 MI for $7 \times 360 - their 540 - 360$ (d) (i) $2x + 5 + 3y - 20 + 4x - 5 + x + y - 10 = 360$ oc 1 All or correct multiplication (ii) $2x + 5 + 3y - 20 = 180$ 1 MI for correct multiplication MI for correct substitution to find the		(c)	1970	or 1969 to 1970.4	2	M1 for $\frac{1}{2} \times 119.9 \times 62 \times \sin 32$				
(b) $x(9-2x)(7-2x)$ $4x^3 - 32x^2 + 63x$ MIFT AI Correct expansion and simplification with no errors (c) 24 20 2 B1 for each correct value (d) Correct curve 3 B2FT for 5 correct plots or B1FT for 3 or 4 correct plots (e) 0.65 to $0.75 \le x \le 2$ oe 2 B1 for 0.65 to 0.75 seen (f) (i) 36 to 37 1 (ii) 1.2 to 1.4 1 4 (a) 48 and 84 66 and 66 2 M1 for 3 × 180 or (2 × 5 - 4) × 90 or 5 × (180 - 360 + 5) oe (c) 1620 2 M1 for 7 × 360 - their 540 - 360 (d) (i) $2x + 5 + 3y - 20 + 4x - 5 + x + y - 10 = 360$ oe 1 (iii) $2x + 5 + 3y - 20 = 180$ 1 M1 for correct multiplication M1 for correct elimination A1 $x = 30$ or $y = 45$ (iii) $[x =] 30, [y =] 45$ nfww 4 M1 for correct elimination A1 $x = 30$ or $y = 45$		(d)	22300	or 22310 to 22320	3	or				
4 $x^3 - 32x^2 + 63x$ A1Correct expansion and simplification with no errors(c)24202B1 for each correct value(d)Correct curve3 $B2FT$ for 5 correct plots or B1FT for 3 or 4 correct plots(e)0.65 to 0.75 $\le x \le 2$ oe2B1 for 0.65 to 0.75 seen(f)(i)36 to 371(ii)1.2 to 1.414(a)48 and 84 66 and 662(b)5402M1 for 3×180 or $(2 \times 5 - 4) \times 90$ or $5 \times (180 - 360 + 5)$ oe(c)16202(ii) $2x + 5 + 3y - 20 + 4x - 5 + x + y - 10 = 360$ oe1(iii) $2x + 5 + 3y - 20 = 180$ 1(iii) $[x =] 30, [y =] 45$ nfww4M1 for correct multiplication M1 for correct elimination A1 $x = 30$ or $y = 45$ If 0 scored SC1 for correct substitution to find the	3	(a)	9 - 2x	, $7 - 2x$ oe	2	B1 for each, accept in any order				
(d) Correct curve 3 B2FT for 5 correct plots or B1FT for 3 or 4 correct plots (e) 0.65 to $0.75 \le x \le 2$ oe 2 B1 for 0.65 to 0.75 seen (f) (i) 36 to 37 1 (ii) 1.2 to 1.4 1 4 (a) 48 and 84 66 and 66 2 B1 for each pair (b) 540 2 M1 for 3×180 or $(2 \times 5 - 4) \times 90$ or $5 \times (180 - 360 \div 5)$ oe (c) 1620 2 M1 for $7 \times 360 - their 540 - 360$ (d) (i) $2x + 5 + 3y - 20 + 4x - 5 + x + y - 1$ Allow partial simplification but not $7x + 4y - 30 = 360$ (ii) $2x + 5 + 3y - 20 = 180$ 1 (iii) $[x =] 30, [y =] 45$ nfww 4 M1 for correct multiplication M1 for correct elimination A1 $x = 30$ or $y = 45$		(b)	$\begin{array}{c} x(9-2) \\ 4x^3-3 \end{array}$	$\frac{2x}{32x^2 + 63x}$						
or BIFT for 3 or 4 correct plots (e) $0.65 \text{ to } 0.75 \le x \le 2$ oe 2 (f) (i) $36 \text{ to } 37$ 1 (ii) $1.2 \text{ to } 1.4$ 1 4 (a) $48 \text{ and } 84$ 2 (b) 540 2 (c) 1620 2 (d) (i) $2x + 5 + 3y - 20 + 4x - 5 + x + y - 10 = 360$ oe (ii) $2x + 5 + 3y - 20 = 180$ 1 (iii) $[x =] 30, [y =] 45 \text{ nfww}$ 4 M1 for correct multiplication MI for correct elimination AI $x = 30$ or $y = 45$ If 0 scored SC1 for correct substitution to find the		(c)	24 2	0	2	B1 for each correct value				
(f) (i) $36 \text{ to } 37$ 1 (ii) $1.2 \text{ to } 1.4$ 1 4 (a) $48 \text{ and } 84$ 2 B1 for each pair (b) 540 2 M1 for 3×180 or $(2 \times 5 - 4) \times 90$ or $5 \times (180 - 360 \div 5)$ oe (c) 1620 2 M1 for $7 \times 360 - their 540 - 360$ (d) (i) $2x + 5 + 3y - 20 + 4x - 5 + x + y - 10 = 360$ oe 1 (ii) $2x + 5 + 3y - 20 = 180$ 1 (iii) $[x =] 30, [y =] 45$ nfww 4 M1 for correct multiplication M1 for correct elimination A1 $x = 30$ or $y = 45$		(d)	Correc	et curve	3	or				
(ii) $1.2 \text{ to } 1.4$ 1 4 (a) 48 and 84 66 and 66 2 B1 for each pair (b) 540 2 M1 for 3×180 or $(2 \times 5 - 4) \times 90$ or $5 \times (180 - 360 \div 5)$ oe (c) 1620 2 M1 for $7 \times 360 - their 540 - 360$ (d) (i) $2x + 5 + 3y - 20 + 4x - 5 + x + y - 10 = 360$ oe 1 Allow partial simplification but not $7x + 4y - 30 = 360$ (ii) $2x + 5 + 3y - 20 = 180$ 1 M1 for correct multiplication M1 for correct elimination A1 $x = 30$ or $y = 45$ (iii) $[x =] 30, [y =] 45$ nfww 4 M1 for correct substitution to find the		(e)	0.65 to	0.00000000000000000000000000000000000	2	B1 for 0.65 to 0.75 seen				
4 (a) 48 and 84 66 and 66 2 B1 for each pair (b) 540 2 M1 for 3×180 or $(2 \times 5 - 4) \times 90$ or $5 \times (180 - 360 \div 5)$ oe (c) 1620 2 M1 for $7 \times 360 - their 540 - 360$ (d) (i) $2x + 5 + 3y - 20 + 4x - 5 + x + y - 10 = 360$ oe 1 (ii) $2x + 5 + 3y - 20 = 180$ 1 (iii) $[x =] 30, [y =] 45$ nfww 4 M1 for correct multiplication M1 for correct elimination A1 $x = 30$ or $y = 45$ If 0 scored SC1 for correct substitution to find the		(f) (i)	36 to 3	37	1					
66 and 66 66 and 66 (b) 540 (c) 1620 (d) (i) $2x + 5 + 3y - 20 + 4x - 5 + x + y - 10 = 360$ oe (ii) $2x + 5 + 3y - 20 = 180$ (iii) $2x + 5 + 3y - 20 = 180$ (iii) $[x =] 30, [y =] 45$ nfww 4 M1 for correct multiplication M1 for correct substitution to find the		(ii)	1.2 to	1.4	1					
(c) 1620 (d) (i) $2x + 5 + 3y - 20 + 4x - 5 + x + y - 10 = 360$ oe (e) (f) (f) $2x + 5 + 3y - 20 + 4x - 5 + x + y - 10 = 360$ oe (f) (f	4	(a)			2	B1 for each pair				
(d) (i) $2x + 5 + 3y - 20 + 4x - 5 + x + y - 10 = 360$ oe1Allow partial simplification but not $7x + 4y - 30 = 360$ (ii) $2x + 5 + 3y - 20 = 180$ 1(iii) $[x =] 30, [y =] 45$ nfww4M1 for correct multiplication M1 for correct elimination A1 $x = 30$ or $y = 45$ If 0 scored SC1 for correct substitution to find the		(b)	540		2					
(ii) $10 = 360$ oe (ii) $2x + 5 + 3y - 20 = 180$ (iii) $[x =] 30, [y =] 45$ nfww 4 M1 for correct multiplication M1 for correct elimination A1 $x = 30$ or $y = 45$ If 0 scored SC1 for correct substitution to find the		(c)	1620		2	M1 for 7 × 360 – <i>their</i> 540 – 360				
(iii) $[x =] 30, [y =] 45$ nfww 4 M1 for correct multiplication M1 for correct elimination A1 $x = 30$ or $y = 45$ If 0 scored SC1 for correct substitution to find the		(d) (i)			1	Allow partial simplification but not $7x + 4y - 30 = 360$				
M1 for correct elimination A1 $x = 30$ or $y = 45$ If 0 scored SC1 for correct substitution to find the		(ii)	2x + 5	+3y-20 = 180	1					
		(iii)	[<i>x</i> =] 3	[0, [y=] 45 nfww	4	M1 for correct elimination				
(iv) 65, 115, 115, 65 1 Accept in any order		(iv)	65, 11	5, 115, 65	1	Accept in any order				

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5	(a) (i)	3.81 or 3.812 to 3.813 or 3h 49min nfww	4	Syllabusar 20130580M1 for midpoints soi (condone 1 error or construction)M1 for use of $\sum fx$ with x in correct interval incluberboth boundaries (condone 1 further error or omission)andM1 (dep on 2 nd M1) for $\sum fx \div 80$ (305 ÷ 80)				
	(ii)	Correct histogram	4	B1 for each correct blockandB1 for correct widths				
	(b) (i)	$\frac{2}{5}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{1}{4}$ oe	2	B1 for $\frac{2}{5}$ or both $\frac{1}{4}$ s in correct place				
	(ii) $\frac{18}{20}$ nfww $\left[\frac{9}{10}\right]$			M2 FT for $1 - their \frac{2}{5} \times their \frac{1}{4}$ or $\frac{3}{5} \times \frac{3}{4} + \frac{3}{5} \times their \frac{1}{4} + their \frac{2}{5} \times \frac{3}{4}$ oe or				
	(iii)	$\frac{27}{125}$ [0.216]	2	M1 FT for their $\frac{2}{5} \times their \frac{1}{4}$ or $\frac{3}{5} \times their \frac{1}{4} + their \frac{2}{5} \times \frac{3}{4}$ oe M1 for $\frac{3}{5} \times \frac{3}{5} \times \frac{3}{5}$				
6	(a)	329.7 to 330	3	M2 for $\frac{1}{2}\pi(12^2 + 8.75^2 - 3.25^2)$ oe or M1 for $\frac{1}{2}\pi 12^2$ or $\frac{1}{2}\pi 8.75^2$ or $\frac{1}{2}\pi 3.25^2$ SC2 for answer 1318 to 1320				
	(b)	2970 or 2967 to 2969.[]	4	M3 for $\frac{1}{2}\pi(24 + 17.5 + 6.5) \times 35 + their$ (a) or M2 for $\frac{1}{2}\pi(24 + 17.5 + 6.5) \times 35$ or M1 for $\frac{1}{2}\pi \times 24$ or $\frac{1}{2}\pi \times 17.5$ or $\frac{1}{2}\pi \times 6.5$				
	(c)	11.5 or 11.6 or 11.53 to 11.55	 SC3 for 3955 to 3960 dep on SC2 in (a) M1 for <i>their</i> (a) × 35 A1 for 11500 or 11530 to 11550 					

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	Page	e 5	Mark Scheme			Syllabus	·	21
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(d)) (i)	$\frac{r}{h} = \frac{20}{40}$	or $\frac{r}{20} = \frac{h}{40}$	1	Accept 20 : 40 $\frac{20}{40} = \frac{1}{2}$ and	p = r:h leading $\frac{r}{h} = \frac{1}{2}$	to $40r = 20$.	hundred the second second
	(ii)	35.3 or	35.31 to 35.34	3	or M1 for <i>their</i> 1	$\frac{\overline{ir 11545 \times 12}}{\pi} \text{oe}$ $11545 = \frac{1}{3} \times \pi \times (1545) \times 10^{-10} $	$\left(\frac{h}{2}\right)^2 \times h$ of	
7 (a)) (i)	$\frac{3}{2}$ or 1	.5	2	M1 for $\frac{14-(1)}{8-(1)}$	(<u>-4)</u> oe		
	(ii)	$y = \frac{3}{2}x$	r + 2 oe	2	B1 for $y = th$ or $y = mx +$ SC1 for $\frac{3}{2}x +$	neir $\frac{3}{2}x + c$ o.e. 2, $m \neq 0$ - 2		
	(iii)	$\begin{pmatrix} 12\\18 \end{pmatrix}$		1				
	(iv)	21.6 or	21.63[]	2	M1 FT for the	<i>eir</i> 12^2 + <i>their</i> 18^2	oe	
(b)) (i)	(a) 3b	- 4 a	1				
		(b) $\frac{1}{5}$	$(6\mathbf{b} - 8\mathbf{a})$ oe simplified	2	M1 for $\frac{1}{5}(12)$	a + 6 b) - 4 a or A	AR = AO +	OR
		(c) 6a	+ 3b oe simplified	1				
	(ii)	OR is pa	arallel to <i>OT</i>	1	Dep on \overrightarrow{OT} con	rrect		
	(iii)	$\frac{9}{4}$ or 2	25	2	M1 for $\left(\frac{3}{2}\right)^2$			

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8	(a)	$\frac{2(s-ut)}{t^2}$ oe nfww	a N a	$\begin{array}{c c} & & & & & & & \\ \hline & & & & & & \\ \hline 2013 & & & \\ \hline 2013 $
	(b)	36.75 cao		M2 for 15.5 + 2.5 × 8.5 B1 for two of 15.5, 2.5, 8.5 seen
	(c) (i)	$\frac{16}{5}$ or better [3.2]	1	
	(ii)	11.2	c	M2 for $\frac{1}{2}(25 + 10)16$ (= 280) or M1 for appreciation of distance from area and M1 for <i>their</i> 280 ÷ 25 (dep on M1)
9	(a)	15 18 $3n+3$ or $3(n+1)$ 6 10 25 36 $(n+1)^2$	C H C H C	B2 for 15, 6, 25 or B1 for two correct values B3 for 18, 10, 36 or B1 for each correct value B2 for $3n + 3$ oe or M1 for $3n + k$, for any k B2 for $(n + 1)^2$ oe or M1 for a quadratic expression
	(b)	14		M1 for $(n+1)(n+2) = 240$ or better or $15 \times 16 = 240$
	(c) (i)	$\frac{1}{2} + p + q = 9$	1	
	(ii)	[p =] 3 $[q =] \frac{11}{2}$	c N e A	B2 for $4p + 2q = 23$ or B1 for $\frac{1}{2} \times 2^3 + p \times 2^2 + q \times 2$ oe M1 for correct multiplication and subtraction of <i>their</i> equations A1 for $[p =] 3$ or $[q =] \frac{11}{2}$ of 0 scored then SC1 for either correct

	Page	27	Mark Scheme IGCSE – October/November 2013			umaths cloud.com
10	(a)	$\frac{x}{x+3}$ ca	3	B1 for $(x + 3)$ B1 for $x(x - 3)$	(x - 3))	ISCIOUD.CO
	(b)	$\frac{3}{2}$ and -5	7	or M1 for mu or $\frac{15(x+1)}{x(x+1)}$ and B2 for 2 <i>x</i> or B1 for 15 <i>x</i>	$\frac{-20x}{1)}$ $x^{2} + 7x - 15 [= 0]$ $x + 15 - 20x \text{ or } 2x^{2} + 2x$ $2x - 3)(x + 5) \text{ or } their \text{ co}$ $x + a)(x + b)$ $5 \text{ or } a + 2b = 7$	