

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 series

0607 CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/22

Paper 2 (Extended), maximum raw mark 40

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 2014 series for most Cambridge IGCSE[®], Cambridge International A and AS Level components and some Cambridge O Level components.

Page 2	Mark Scheme	Syllabus	Paper
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1	$-1, 5$	2	B1 each
2	$n^2 - 2n$ oe	3	B2 for $n^2 + kn$ or $(n - 1)^2 + k$ or M1 for second differences equal or any other quadratic expression
3	$\frac{27}{64}$	2	B1 for 27 or 64 in answer or M1 for $\frac{1}{\sqrt{\left(\frac{16}{9}\right)^3}}$ oe or better
4	$a = 3, b = -3$	3	M1 for $\times \frac{\sqrt{2}-1}{\sqrt{2}-1}$ or $3 = 2a + a\sqrt{2} + b\sqrt{2} + b$ A1 for one correct
5 (a)	25	2	M1 for $7^2 + 24^2$
(b)	4.8 oe	2	M1 for $\sin \alpha = \frac{y}{8}$ oe
6 (a)	$(x - 8)(x + 3)$	2	SC1 for $(x + a)(x + b)$ where $ab = -24$ or $a + b = -5$
(b)	$(q + 1)(p - t)$	2	B1 for $p(q + 1) - t(q + 1)$ or $q(p - t) + p - t$
7	$\frac{30}{56}$ oe	3	M2 for $\frac{5}{8} \times \frac{3}{7} + \frac{3}{8} \times \frac{5}{7}$ oe or M1 for one of these products
8 (a)	$y = \frac{6}{\sqrt{x}}$	2	M1 for $y = \frac{k}{\sqrt{x}}$ or for $\frac{y}{3} = \frac{\frac{1}{\sqrt{x}}}{\frac{1}{\sqrt{4}}}$
(b)	2	1FT	
(c)	$\left(\frac{6}{y}\right)^2$ oe	2FT	FT their (a) only if $y = \frac{k}{\sqrt{x}}$ or $y = k\sqrt{x}$ or $y = \frac{k}{x^2}$ M1 for correct multiplication and division M1 for correct squaring
9 (a)	-2	1	
(b)	3^p	2	B1 for $\log_3 q$ or $p \log 3$ seen or SC1 for answer $10^{p \log 3}$

Page 3	Mark Scheme	Syllabus	Paper
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10	(a) (i)	(4, 0)	1	
	(ii)	(0, 3)	1	
	(iii)	(2, 1.5)	1FT	FT <i>their</i> (i), (ii) but can recover
	(b)	$y = \frac{4}{3}x$ oe	3	M1 FT for gradient of $l = -\frac{3}{4}$ M1 for gradient = $\frac{-1}{\text{gradient of } l}$ If 0 scored, SC1 for answer in form $y = kx$ oe, $k > 0$
11		Triangle vertices (2, 1), (2, 2), 6, 1)	2	SC1 for stretch factor 2 with x -axis invariant
12		$a = -1, b = 4, c = 0$	3	B2 for $a(x - 2)^2 + 4$ or B2 for $x(4 - x)$ or $x(x - 4)$ or M1 for $c = 0$ and $4a + 2b = 4$ and $16a + 4b = 0$ and M1 for eliminating a or b or M1 for $0a + 0b + c = 0$ $4a + 2b + c = 4$ $16a + 4b + c = 0$ and M1 for eliminating two of a, b, c