

**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

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

Page 3	Mark Scheme	Syllabus	Paper
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10	(a) (i) (4, 0) (ii) (0, 3) (iii) (2, 1.5)  (b) $y = \frac{4}{3}x$ oe	1  1  1FT  3	   FT <i>their</i> (i), (ii) but can recover  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 $a, b, c$