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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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 $10^{p \log 3}$

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10 (a) (i)	(4, 0)	**1**	
(ii)	(0, 3)	**1**	
(iii)	(2, 1.5)	**1FT**	**FT** *their* **(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

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