UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2012 question paper

for the guidance of teachers
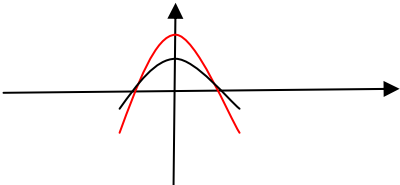
0607 CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/21 Paper 2 (Extended), maximum raw mark 40

1			$(x) = 5$, $(y) = -1$	2	**B1** each, or **M1** for attempt to eliminate x or y (allow 1 numerical slip)	
2			08 13 oe	3	**M1** for distance/speed seen (implied by 0.3) **A1** for 18 minutes	**[3]**
3			$(\pm)\sqrt{\dfrac{2A}{\pi}}$	3	**M1** for × 2 correctly **M1** for ÷ π correctly **M1** for $\sqrt{}$ correctly All independent, in any order	**[3]**
4	(a)		$2\sqrt{13}$ or $\sqrt{52}$ as final answer	2	**M1** for $4^2 + 6^2$	
	(b)		$4\sqrt{5}$ or $\dfrac{12\sqrt{5}}{3}$ or $\sqrt{80}$	2	**M1** for $\cos\theta = \dfrac{g}{12}$ or better	**[4]**
5				2	**B1** for parabola with vertex twice as high **B1** for cutting x-axis in same places as $y = \mathrm{f}(x)$ (Ignore curve below the x axis)	**[2]**
6	(a)		1, 3	2	**B1** each	
	(b)		$5 + 2\sqrt{2}$	2	**M1** for $3\sqrt{2}\sqrt{2} - \sqrt{2} + 3\sqrt{2} - 1$ or better	**[4]**
7	(a)	(i)	6	1		
		(ii)	7	1		
	(b)		$\dfrac{7}{12}$ oe	1		
	(c)		$\dfrac{2}{6}$ oe	1 ft	If $\dfrac{2}{6}$ not seen, then ft their part **(a)(i)**	**[4]**
8	(a)		$(x + 8)(x - 6)$	2	**SC1** for any pairs of brackets giving two correct terms when multiplied out.	
	(b)		$(y + 2z)(x - 3)$	2	**M1** for $x(y + 2z) - 3(y + 2z)$ or $y(x - 3) + z(2x - 6)$ (or better)	**[4]**
9			$(\pm)1.2$ oe	3	**M2** for $y = \dfrac{6}{\sqrt{x}}$ oe or **M2** for $\dfrac{y}{3} = \dfrac{\frac{1}{\sqrt{25}}}{\frac{1}{\sqrt{4}}}$ oe (**M1** for $y = \dfrac{k}{\sqrt{x}}$ oe, where $k \neq 1$, then **dep M1** for $y = \dfrac{\text{their } k}{\sqrt{25}}$)	**[3]**

10	(a)		33	1	Ignore extra terms	
	(b)		$n^2 - 3$	3	**M1** for reaching second differences same **M1** for $an^2 + bn + c$ (implies first **M**) $a \neq 0$	[4]
11			40	2	**M1** for $\left(\dfrac{6}{3}\right)^3$ or $\left(\dfrac{3}{6}\right)^3$ seen	[2]
12	(a)	(i)	4	1		
		(ii)	–3	1		
	(b)		288	3	**M1** for $a \log b = \log b^a$ correctly used once (Implied by 3^2 or 2^5 seen) **M1** for $\log p + \log q = \log pq$ correctly used (Implied by $y = 3^2 \times 2^5$ but can be seen to be correctly used with incorrect values of p, q.) Note log 288 scores 2/3	[5]