Question	Answer	Marks	Partial Marks
2	Valid method to find m $m = \frac{9-7}{10-6}\left[=\frac{1}{2}\right]$	**M1**	
	Valid method to find c e.g. $7 = their\frac{1}{2}\times 6 + c$	**M1**	**FT** *their m*
	$\lg y = \left(their\frac{1}{2}\right)x^3 + their4$	**M1**	
	$y = 10^{\frac{1}{2}x^3+4}$ oe, isw	**A1**	
3	Rewrites in quadratic form soi e.g. $y = 3^x$ then $y^2 - 3y - 4 = 0$ or $(3^x)^2 - 3(3^x) - 4 = 0$	**M1**	
	Factorises or solves *their* 3-term quadratic e.g. $(y + 1)(y – 4)$ [= 0] or $(3^x + 1)(3^x – 4)$ [= 0]	**M1**	
	$3^x = 4$	**A1**	ignore $3^x = –1$
	$x = \log_3 4$ or $\frac{\ln 4}{\ln 3}$ oe, only	**A1**	
4	$\overrightarrow{OC} - \overrightarrow{OA} = 4(\overrightarrow{OC} - \overrightarrow{OB})$ soi	**B1**	
	$[\overrightarrow{OC} =]$ $\begin{pmatrix}15\\-3\end{pmatrix}$	**B2**	**B1** for [x =] 15 or [y =] –3
	$\left\lvert\overrightarrow{OC}\right\rvert = \sqrt{their15^2 + their(-3)^2}$	**M1**	
	$\frac{1}{\sqrt{234}}\begin{pmatrix}15\\-3\end{pmatrix}$ oe	**A1**	**FT** *their* $\begin{pmatrix}15\\-3\end{pmatrix}$ and *their* $\sqrt{234}$
5(a)	Correct V shape with vertex on positive x-axis	**B1**	
	(0, 7)	**B1**	
	$\left(\frac{7}{5}, 0\right)$	**B1**	

Question	Answer	Marks	Partial Marks
5(b)	$x = 2$	**B1**	
	$5x - 7 = their(-3)$ oe, soi or $25x - 35 = their(-15)$ oe, soi	**M1**	
	$x = \frac{4}{5}$ oe	**A1**	
	Alternative method		
	$25x^2 - 70x + 40 = 0$ oe	**(B1**	
	factorising e.g. $(5x - 4)(x - 2)$	**M1**	
	$x = 2,\ \frac{4}{5}$	**A1)**	
6(a)	$2(6) + 6\theta = 2(6 + 5\pi)$ oe	**M1**	
	$\theta = \frac{5}{3}\pi$ oe, soi	**A1**	
	$\frac{1}{2} \times 6^2 \times their\left(\frac{5\pi}{3}\right)$	**M1**	
	94.2 or 30π	**A1**	
	Alternative method		
	arc $AB = 10\pi$	**(M1**	
	sector is $\frac{10\pi}{12\pi} = \frac{5}{6}$ of the circle	**B1**	
	$\frac{5}{6} \times 36\pi$	**M1**	
	94.2 or 30π	**A1)**	
6(b)	$2\left(7\sin\frac{\pi}{8}\right) + \frac{7\pi}{4}$ oe, soi	**M2**	**M1** for $2\left(7\sin\frac{\pi}{8}\right) + their\left(\frac{7\pi}{4}\right)$ or $their\left(2\left(7\sin\frac{\pi}{8}\right)\right) + \frac{7\pi}{4}$
	10.9 or 10.85 to 10.86	**A1**	