Question	Answer	Marks	Guidance
3(b)	$5x-2*4x+1$ leading to critical value 3	**B1**	* can be $\leqslant$, =, $\geqslant$
	$5x-2*-4x-1$ oe	**M1**	* can be $\leqslant$, =, $\geqslant$
	leading to critical value $\frac{1}{9}$	**A1**	
	$\frac{1}{9} \leqslant x \leqslant 3$	**A1**	Mark final answer
	Alternative $9x^2-28x+3*0$	**(M1)**	Squaring both sides of the inequality and collecting terms, allow one sign error. * can be $\leqslant$, =, $\geqslant$
	$(9x-1)(x-3)*0$	**(M1)**	**Dep** for attempt to find two critical values * can be $\leqslant$, =, $\geqslant$
	Critical values $\frac{1}{9}$ and 3	**(A1)**	
	$\frac{1}{9} \leqslant x \leqslant 3$	**(A1)**	Mark final answer
4(a)	$r\theta = 12$ soi	**B1**	
	$\frac{1}{2}r^2\theta = 57.6$ soi	**B1**	
	$r = 9.6$ oe nfww	**B1**	
	$\theta = 1.25$ oe nfww	**B1**	
4(b)	$AC = 28.89$	**B1**	
	Shaded area = $\left(\frac{1}{2}\times 28.89\times 9.6\right)-57.6$ soi	**M1**	Using *their AC*
	81.1	**A1**	
	Alternative $OC = 30.45$	**(B1)**	
	Shaded area = $\left(\frac{1}{2}\times 30.45\times 9.6\times \sin 1.25\right)-57.6$ soi	**(M1)**	Using *their OC*
	81.1	**(A1)**	

Question	Answer	Marks	Guidance
5(a)	$6p^{\frac{2}{3}} - 13p^{\frac{1}{3}} - 5(=0)$ soi	**B1**	May introduce *their* own variable e.g. x
	$\left(\left(2p^{\frac{1}{3}} - 5\right)\left(3p^{\frac{1}{3}} + 1\right) = 0 \text{ oe}\right)$ $p^{\frac{1}{3}} = \frac{5}{2} \quad p^{\frac{1}{3}} = -\frac{1}{3}$	**M1**	For attempt to solve quadratic equation to obtain $p^{\frac{1}{3}} = ..$ or e.g. $x = \ldots$
	$\frac{125}{8}$ or 15.625 or $15\frac{5}{8}$	**A1**	Must be simplified and exact
	$-\frac{1}{27}$	**A1**	Must be simplified and exact
5(b)	$\lg(2x+5)^2$	**B1**	
	$\lg\frac{(2x+5)^2}{x+2}$	**B1**	**Dep** on first **B1**, must be a correct statement
	$1 = \lg 10$ soi	**B1**	
	$\frac{(2x+5)^2}{(x+2)} = k$ oe	**M1**	Dep on second **B** mark For correct attempt to obtain a quadratic equation with no log terms, where $k = 1$ or 10
	$4x^2 + 10x + 5 = 0$ $x = \frac{-5 \pm \sqrt{5}}{4}$ or exact equivalent	**2**	**M1** for attempt to solve *their* quadratic to obtain $x = \ldots$, implied by decimals of -1.8 or -0.69 or better **A1** for both, **A0** if one is discarded
6(a)	A correct equation in terms of x and y only	**B1**	No inverse trig functions
	$y = (x-4)^2 - 3$ or $y = x^2 - 8x + 13$	**B1**	
6(b)	$\sin\left(2\phi + \frac{3\pi}{4}\right) = \frac{\sqrt{3}}{2}$ soi	**B1**	May be implied by one correct solution
	$-\frac{5\pi}{24}, -\frac{\pi}{24}, \frac{19\pi}{24}, \frac{23\pi}{24}$ with no extra solutions within the range	**4**	**M1** for explicitly correct order of operations from $\textit{their}\left(2\phi + \frac{3\pi}{4}\right) = k$, or may be implied by one correct solution **A1** for two correct solutions **A1** for a third correct solution **A1** for a further solution with no extra solutions in the range