Question	Answer	Marks	Guidance
3(b)	(3, 3)	**2**	**B1** for each
3(c)	Radius = $3\sqrt{2}$ oe soi	**B1**	
	$(x-3)^2+(y-3)^2$ soi	**B1**	**FT** on *their* answer to **(b)** only
	$(x-3)^2+(y-3)^2=18$ oe	**B1**	ISW any expansion
4(a)	$[-\cos\theta]_0^{\pi}$	**B1**	May be implied by $(-\cos\pi)-(-\cos 0)$
	2	**B1**	
4(b)	$\dfrac{\frac{1}{\cos\alpha}}{\frac{\cos\alpha}{\sin\alpha}+\frac{\sin\alpha}{\cos\alpha}}$	**B1**	For ratios in terms of sine and cosine
	$\dfrac{\frac{1}{\cos\alpha}}{\frac{\cos^2\alpha+\sin^2\alpha}{\sin\alpha\cos\alpha}}$	**B1**	For simplifying the denominator to one term
	$\dfrac{\frac{1}{\cos\alpha}}{\frac{1}{\cos\alpha\sin\alpha}}$ $=\sin\alpha$	**B1**	Must show sufficient correct detail
	Alternative		
	$\dfrac{\frac{1}{\cos\alpha}}{\frac{1}{\tan\alpha}+\tan\alpha}$ or $\dfrac{\sec\alpha}{\frac{1}{\tan\alpha}+\tan\alpha}$	**(B1)**	For ratios in terms of tangent and cosine or secant and tangent
	$\dfrac{\frac{1}{\cos\alpha}}{\frac{\sec^2\alpha}{\tan\alpha}}$ or $\dfrac{\sec\alpha}{\frac{\sec^2\alpha}{\tan\alpha}}$ oe	**(B1)**	For dealing with the denominator
	$\dfrac{\tan\alpha}{\sec\alpha}=\dfrac{\sin\alpha}{\cos\alpha}\times\cos\alpha$ oe $=\sin\alpha$	**(B1)**	Must show correct sufficient detail

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Question	Answer	Marks	Guidance
5(a)	$p'(x) = 9x^2 - 14x + a$ soi	**B1**	
	$p'(-1) = 9 + 14 + a = 21$ $a = -2$	**B1**	
	$p(2) = 24 - 28 + 2a + b = 0$ soi	**B1**	Each term must be simplified, allow using *their a*
	$b = 8$	**B1**	
5(b)	$[x-2](3x^2 - x - 4)$ soi	**2**	**M1** for quadratic factor with two terms correct **A1** must be from correct *a* and *b*
	$(x-2)(x+1)(3x-4)$	**A1**	**A1** must be from correct *a* and *b*
5(c)	$(e^{2y} - 2) = 0$ soi	**B1**	
	$y = \frac{1}{2}\ln\frac{4}{3}$ oe, $y = \frac{1}{2}\ln 2$ oe	**2**	**B1** for one correct solution **B2** for both solutions and no extra solution.
6(a)	$\ln y = mx^3 + c$ soi	**B1**	*c* may be shown as a log term
	$25 = -8m + c$ $5 = 2m + c$	**M1**	For at least one correct equation, may be used with gradient of -2
	$m = -2,\ c = 9$	**A1**	$y = -2x + 9$ seen implies **M1A1**
	$y = e^{9-2x^3}$ oe	**A1**	
6(b)	$25 = 9 - 2x^3$	**M1**	For equating exponential indices and obtaining $x = \ldots$ or use of $x = \sqrt[3]{\frac{25 - their\ 9}{their - 2}}$
	$x = -2$ only	**A1**	