Question	Answer	Marks	Partial Marks
3	$C(10, -4)$	**B1**	
	$[m_{AC} =]\frac{6-1}{2-6}$ oe or $\frac{-5}{4}$ oe	**M1**	
	$m_{\perp} = \frac{4}{5}$	**M1**	**FT** $\frac{-1}{their\frac{-5}{4}}$
	$y - (-4) = \frac{4}{5}(x - 10)$ oe	**A1**	**FT** *their* coordinates of *C* providing that one coordinate is correct and *their* perpendicular gradient
	$4x - 5y = 60$ oe	**A1**	
4(a)	CVs $\frac{1}{5}$, 6	**M1**	
	$x < \frac{1}{5}$, $x > 6$	**A1**	mark final answer
4(b)	$(-4k)^2 - 4(2k + 1)(2k - 1)$	**M1**	
	$16k^2 - 4(4k^2 - 1)$ or $16k^2 - 16k^2 - 8k + 8k + 4$ or better	**A1**	
	$4 > 0$	**A1**	
5(a)	8π	**B1**	
5(b)	$c = 3$	**B1**	
	$\left[\frac{\pi}{b} = 8\pi\right]\ b = \frac{1}{8}$	**B1**	
	$7 = a\tan\left(\frac{\pi}{4}\right) + 3$ oe	**M1**	
	$a = 4$	**A1**	

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6(a)	$p'(x)$: $18x^2 + 2ax - 52$	**B1**	
	$18 + 2a - 52 = 4$	**M1**	**FT** if at least 2 terms correct in derivative and has a term in a
	$a = 19$	**A1**	
	Correct method to find b $\frac{6\times 27}{8} + \frac{9(19)}{4} - \frac{52\times 3}{2} + b = 0$ or $\frac{81}{4} + \frac{171}{4} - 78 + b = 0$ oe or correct elimination of a using $9a + 4b = 231$ oe and $2a - 34 = 4$ oe	**M1**	**FT** *their* integer value of a if used $9(19) + 4b = 231$
	$b = 15$	**A1**	If 0 scored, **SC1** for $9a + 4b = 231$ or $\frac{81}{4} + \frac{9a}{4} - 78 + b = 0$ or $\frac{9}{4}a + b = \frac{231}{4}$ oe
6(b)	$p(x) = (2x-3)(3x^2 + 14x - 5)$	**M2**	**M1** for two terms correct in quadratic factor
	$(2x-3)(3x-1)(x+5)$	**A1**	
7(a)(i)	$x > 0.6$	**B1**	
7(a)(ii)	$[x =]\frac{13}{5}$ or 2.6	**B1**	nfww
7(b)	$\frac{1}{2}\log_y 64 = \log_y 8$ soi or $4 = \log_y y^4$ soi	**B1**	
	Combines log terms e.g. $\log_y \frac{x}{1296} = 4$ or $\log_y x = \log_y 1296y^4$ or $\log_y \frac{1296}{x} = -4$	**B2**	**B1** for one further correct application of a relevant log law e.g. $\log_y x = 4 + \log_y 1296$ or $\log_y x = \log_y y^4 + \log_y 8 + \log_y 162$
	$y^4 = \frac{x}{1296}$ or $1296y^4 = x$ oe	**M1**	
	$y = \frac{\sqrt[4]{x}}{6}$ or $y = \frac{x^{\frac{1}{4}}}{6}$	**A1**	mark final answer