Question	Answer	Marks	Partial Marks
5(b)	$y-12=-\frac{5}{4}(x-5)$	**B1**	
	Attempts to solve *their* equations	**M1**	
	(13, 2)	**A2**	**A1** for $x=13$ or $y=2$
6(a)	$\frac{\mathrm{d}y}{\mathrm{d}x}=\sec^2 2x$	**B1**	
	$their\left.\frac{\mathrm{d}y}{\mathrm{d}x}\right\|_{x=\frac{\pi}{8}}=their2$	**B1**	**FT** *their* $\frac{\mathrm{d}y}{\mathrm{d}x}$
	$x=\frac{\pi}{8},\quad y=4$	**B1**	
	$y-their4=(their2)\left(x-\frac{\pi}{8}\right)$ oe	**M1**	
	$2x-y=\frac{\pi}{4}-4$	**A1**	
6(b)	$\sqrt{\left(\frac{\pi}{8}-2\right)^2+\left(4-\frac{\pi}{4}\right)^2}$ oe	**M1**	
	3.59 or 3.59[03…] rot to four or more figs	**A1**	
7(a)	$2\ln(5x+2)$	**B2**	**B1** for $k\ln(5x+2)$
	$2\left(\ln(22)-\ln(2)\right)$ oe soi	**M1**	
	$2\ln 11$ or $\ln 121$ or $\ln 11^2$	**A1**	
7(b)	$\int \mathrm{e}^{8x+4}\mathrm{d}x$	**M1**	
	$\left[\frac{1}{8}\mathrm{e}^{8x+4}\right]_0^{\ln 2}$	**M1**	
	$\frac{1}{8}\left(\mathrm{e}^{\ln 2^8}\times\mathrm{e}^4-\mathrm{e}^4\right)$ oe	**M2**	**M1** for $\frac{1}{8}\left(\mathrm{e}^{\ln 2^8+4}-\mathrm{e}^4\right)$
	$\frac{255}{8}\mathrm{e}^4$ or exact equivalent	**A1**	

Question	Answer	Marks	Partial Marks
8(a)	$3(\text{cosec}^2 x - 1) - 14\,\text{cosec}\, x - 2 [= 0]$	**M1**	
	$3\text{cosec}^2 x - 14\text{cosec}\, x - 5 = 0$	**A1**	
	$(\text{cosec} x - 5)(3\text{cosec} x + 1)$	**M1**	
	$\sin x = \frac{1}{5}$ nfww	**A1**	
	11.5 and 168.5 nfww	**A1**	
8(b)	Correct use of $\sin^2 y + \cos^2 y = 1$	**B1**	
	Factorises using the difference of 2 squares	**B1**	
	Uses $\frac{1}{\cot y} = \tan y$ or $\cot y = \frac{\cos y}{\sin y}$ correctly	**B1**	
	Full and correct completion to given answer: $\tan y - 2\cos y \sin y$	**B1**	
9(a)	$\frac{3^{10x}}{3^{3x-6}} [= 243]$ oe or $\log 9^{5x} - \log 27^{x-2} = \log 243$ oe	**B1**	
	$3^{7x+6} = 3^5$ soi oe or $5x(\log 9) - (x-2)\log 27 = \log 243$	**M1**	
	$x = -\frac{1}{7}$	**A1**	