Question	Answer	Marks	Partial Marks
4	Factorised form: $(x+n)(x-n)(2x-1)$ oe	**B1**	
	Multiplies out correctly	**M1**	**FT** *their* factorised form provided of equivalent difficulty
	Correct expanded form in terms of n: $2x^3-x^2-2n^2x+n^2$	**A1**	
	Uses (*their* n^2) $=4$ in *their* expression	**M1**	
	$2x^3-x^2-8x+4$	**A1**	If **A0A0** then **SC1** for $(x+n)(x-n)(x-0.5)$ giving $n^2=8$ leading to $x^3-\frac{1}{2}x^2-8x+4$
			Alternative method: **B1** for factorised form: $(x+n)(x-n)(2x-1)$
			M1 for *their* $n^2=4$
			A1 for $n=2$
			M1 for multiplying out $(x+their\,2)(x-their\,2)(2x-1)$
			A1 for $2x^3-x^2-8x+4$ If **A0A0** then **SC1** for $(x+n)(x-n)(x-0.5)$ giving $n^2=8$ leading to $x^3-\frac{1}{2}x^2-8x+4$
5(a)	Finds coordinates of mid-point (8, –2)	**B1**	
	$m_{AB}=\frac{3+7}{4-12}\left[=-\frac{5}{4}\right]$ oe soi	**B1**	
	$m_L=\frac{-1}{-5/4}$ oe	**M1**	
	$y+2=\frac{4}{5}(x-8)$ oe isw	**A1**	

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**	