Question	Answer	Marks	Partial Marks
7	$\frac{\mathrm{d}}{\mathrm{d}x}(\mathrm{e}^{4x}) = 4\mathrm{e}^{4x}$ soi	**B1**	
	$4\mathrm{e}^{4x}\tan x + \mathrm{e}^{4x}\sec^2 x$	**M1**	**FT** *their* $4\mathrm{e}^{4x}$
	$\dfrac{(\ln x)(4\mathrm{e}^{4x}\tan x + \mathrm{e}^{4x}\sec^2 x) - \frac{1}{x}\mathrm{e}^{4x}\tan x}{(\ln x)^2}$	**M1**	**FT** *their* $4\mathrm{e}^{4x}\tan x + \mathrm{e}^{4x}\sec^2 x$
	Fully correct derivative, isw	**A1**	
	Alternative method for final two marks Applies correct product rule to $y = (\mathrm{e}^{4x}\tan x)(\ln x)^{-1}$ $\left(4\mathrm{e}^{4x}\tan x + \mathrm{e}^{4x}\sec^2 x\right)(\ln x)^{-1}$ $+\left(-(\ln x)^{-2}\left(\frac{1}{x}\right)\right)\left(\mathrm{e}^{4x}\tan x\right)$	**(M1)**	**FT** *their* $4\mathrm{e}^{4x}\tan x + \mathrm{e}^{4x}\sec^2 x$
	Fully correct derivative, isw	**(A1)**	
8(a)	$3(2\sin x\cos x) - (-2\sin x) \quad [=0]$ or better	**B2**	**B1** for the correct derivative for either term; may be unsimplified
	Factors out $\sin x$ and equates to 0: $[2](\sin x)(3\cos x + 1) = 0$ oe	**B1**	**FT** an expression of the form $a\sin x\cos x + b\sin x$ for non-zero constants a and b
	$\sin x = 0 \quad [\textit{theira}\cos x = -\textit{theirb}]$	**M1**	**FT** an expression of the form $a\sin x\cos x + b\sin x$ for non-zero constants a and b; **dep** on previous **B1**
	$x = \pi$ as only solution	**A1**	**dep** on all previous marks awarded If **B2 B0 M0** then **SC1** for dividing by $\sin x$ and using $\cos^{-1}\left(-\frac{1}{3}\right)$ to find $x = 1.91$ and 4.37 and clearly reject them.