Question	Answer	Marks	Guidance
(a)	State or imply $dx = 3\sec^2\theta\, d\theta$	B1	
	Substitute throughout for x and dx	M1	
	Obtain any correct form in terms of θ	A1	e.g. $\int \dfrac{81\sec^2\theta}{\left(9+9\tan^2\theta\right)^2}\, d\theta$
	Justify change of limits and obtain $\displaystyle\int_0^{\frac{\pi}{4}} \cos^2\theta\, d\theta$ correctly	A1	AG
		4	
(b)	Obtain indefinite integral of the form $\int a + b\cos 2\theta\, d\theta$, where $ab \neq 0$	*M1	
	Obtain $\dfrac{1}{2}\theta + \dfrac{1}{4}\sin 2\theta$	A1	
	Use correct limits correctly in an expression containing $p\theta$ and $q\sin 2\theta$ where $pq \neq 0$	DM1	$\frac{\pi}{8} + \frac{1}{4}(-0)$
	Obtain answer $\dfrac{1}{8}\left(\pi + 2\right)$	A1	Or exact equivalent e.g. $\dfrac{1}{8}\pi + \dfrac{1}{4}$.
		4	