Question	Answer	Marks	Partial Marks
11(b)(ii)	$\int \frac{\sec^2(3x+1)}{2}\,dx = \frac{\tan(3x+1)}{6}$ oe, soi	**B1**	
	$-\int \sin x\,dx = \cos x$ oe	**B1**	
	$F\left(\frac{\pi}{10}\right) - F\left(\frac{\pi}{12}\right)$ where $F(x) = k_1 \tan(3x+1) + k_2 \cos x$ oe	**M1**	
	0.322 or 0.3222[32...] rot to 4 figs	**A1**	
12	For $0 \leqslant t \leqslant 2$: $\int \frac{t}{2e}\,dt = \frac{t^2}{4e}$	**B1**	
	For $t > 2$: $\int e^{-\frac{t}{2}}\,dt = -2e^{-\frac{t}{2}} + \frac{3}{e}$ oe	**B2**	**B1** for $\int e^{-\frac{t}{2}}\,dt = -2e^{-\frac{t}{2}}(+c)$ oe
	$-2e^{-\frac{3}{2}} + \frac{3}{e} - \frac{1}{4e}$ OR $\left(-2e^{-\frac{3}{2}} + \frac{3}{e} - \frac{1}{e}\right) + \left(\frac{1}{e} - \frac{1}{4e}\right)$	**M2**	**M1** for $[s(1) =]\ \frac{1}{4e}$ **and** $[s(3) =] -2e^{-\frac{3}{2}} + their\frac{3}{e}$ or at least one term correct in the difference: $\left(-2e^{-\frac{3}{2}} + their\frac{3}{e}\right) - \frac{1}{4e}$ or for one bracket correct in: $\left(-2e^{-\frac{3}{2}} + their\frac{3}{e} - \frac{1}{e}\right) + \left(\frac{1}{e} - \frac{1}{4e}\right)$
	0.565 or 0.5654 to 0.56541 nfww	**A1**	

Question	Answer	Marks	Partial Marks
12	**Alternative method (using def int):** **M1*** for $= \left[\frac{t^2}{4e}\right]_1^2$		
	M1 for $\left(\frac{4}{4e} - \frac{1}{4e}\right)$ oe (dep*)		
	M1** for $\left[-2e^{-\frac{t}{2}}\right]_2^3$		
	M1 for $\left(-2e^{-\frac{3}{2}} + \frac{2}{e}\right)$ oe (dep**)		
	M1 for $\left(-2e^{-\frac{3}{2}} + \frac{2}{e}\right) + \left(\frac{4}{4e} - \frac{1}{4e}\right)$ oe		
	A1 for 0.565 or 0.5654 to 0.56541 nfww		