Question	Answer	Marks	Partial Marks
10(b)	$x+\frac{1}{x}+2$	**B1**	
	$\frac{\mathrm{d}y}{\mathrm{d}x}=\frac{x^2}{2}+\ln x+2x(+c)$	**M2**	**M1** for $\frac{\mathrm{d}y}{\mathrm{d}x}=...+\ln x+...$ or for $\frac{\mathrm{d}y}{\mathrm{d}x}=\frac{x^2}{2}+...+2x$
	Substitution to find c: $\frac{\mathrm{e}^2}{2}+2\mathrm{e}=\frac{\mathrm{e}^2}{2}+\ln\mathrm{e}+2\mathrm{e}+c$ $[c=-1]$	**M1**	**FT** *their* attempt to integrate dependent on at least **M1**
	$y=\int\left(\frac{x^2}{2}+2x+\ln x-1\right)\mathrm{d}x$	**A1**	
	Integrates and uses (a) $y=\frac{x^3}{6}+\frac{2x^2}{2}+x\ln x-2x+C$	**M1**	Dependent on **M2M1** **FT** error in c only
	$\frac{\mathrm{e}^3}{6}+\mathrm{e}^2=\frac{\mathrm{e}^3}{6}+\mathrm{e}^2+\mathrm{e}\ln\mathrm{e}-2\mathrm{e}+C$	**M1**	Substitution to find C Dependent on previous **M1**
	$y=\frac{x^3}{6}+x^2+x\ln x-2x+\mathrm{e}$	**A1**	
11	$B\left(\frac{\pi}{10},0\right)$ soi	**B1**	
	$\int_0^{\frac{\pi}{4}}\mathrm{e}^{\frac{x}{2}}\,\mathrm{d}x-\int_0^{\frac{\pi}{10}}\cos 5x\,\mathrm{d}x$	**M2**	**M1** Integrates $\mathrm{e}^{\frac{x}{2}}$ to $k\mathrm{e}^{\frac{x}{2}}$, $k\neq 0$ **M1** Integrates $\cos 5x$ to $k\sin 5x$, $k>0$ or $k=-\frac{1}{5}$
	$\left[2\mathrm{e}^{\frac{x}{2}}\right]_0^{\frac{\pi}{4}}-\left[\frac{\sin 5x}{5}\right]_0^{\frac{\pi}{10}}$	**A2**	**A1** for each part correct
	$\left[2\mathrm{e}^{\frac{\pi}{8}}-2\mathrm{e}^0\right]-\left[\frac{1}{5}\sin\frac{5\pi}{10}-\frac{1}{5}\sin 0\right]$	**M1**	**M1** for correct attempt at subtraction and for one correct use of limits dependent on at least **M1**for integration and **B1**
	$2\mathrm{e}^{\frac{\pi}{8}}-\frac{11}{5}$ isw	**A1**	

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