Question	Answer	Marks	Partial Marks
12(a)	$\frac{\mathrm{d}}{\mathrm{d}x}\left(\mathrm{e}^{3x+2}\right)=3\mathrm{e}^{3x+2}$ soi	**B1**	
	$\frac{\mathrm{d}y}{\mathrm{d}x}=x\times \textit{their}\left(3\mathrm{e}^{3x+2}\right)+[1]\mathrm{e}^{3x+2}$ oe, isw	**2**	**FT** *their* $3\mathrm{e}^{3x+2}$ **M1** for correct structure of product rule
12(b)	$\frac{1}{3}x\mathrm{e}^{3x+2}-\frac{1}{9}\mathrm{e}^{3x+2}+c$ oe, nfww	**4**	**B3** for $\int 3x\mathrm{e}^{3x+2}\mathrm{d}x=x\mathrm{e}^{3x+2}-\frac{1}{3}\mathrm{e}^{3x+2}$ $(+A)$ or better or **B2** for $\int 3x\mathrm{e}^{3x+2}\mathrm{d}x=x\mathrm{e}^{3x+2}-\int \mathrm{e}^{3x+2}\mathrm{d}x$ or better or $\frac{1}{3}\mathrm{e}^{3x+2}+\int 3x\mathrm{e}^{3x+2}\mathrm{d}x=x\mathrm{e}^{3x+2}$ or $\int x\mathrm{e}^{3x+2}\mathrm{d}x=\frac{x}{3}\mathrm{e}^{3x+2}+k\mathrm{e}^{3x+2}$ where $k=\frac{1}{9}$ or $-\frac{1}{3}$ or **B1** for $\int 3x\mathrm{e}^{3x+2}\mathrm{d}x=\int\left(3x\mathrm{e}^{3x+2}+\mathrm{e}^{3x+2}\right)\mathrm{d}x-\int \mathrm{e}^{3x+2}\mathrm{d}x$ or $\int \frac{\mathrm{d}y}{\mathrm{d}x}\mathrm{d}x=\int 3x\mathrm{e}^{3x+2}\mathrm{d}x+\int \mathrm{e}^{3x+2}\mathrm{d}x$ or better

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