Question	Answer	Marks	Partial Marks
8(a)	$\frac{\mathrm{d}}{\mathrm{d}x}(\mathrm{e}^{4x}) = 4\mathrm{e}^{4x}$	**B1**	
	$8x\mathrm{e}^{4x} + 2\mathrm{e}^{4x}$ isw	**B1**	**FT** *their* $k\mathrm{e}^{4x}$
8(b)	Use of part (a) $\int 8x\mathrm{e}^{4x}\,\mathrm{d}x = 2x\mathrm{e}^{4x} - \int 2\mathrm{e}^{4x}\,\mathrm{d}x$ oe	**B1**	**FT** part **(a)** providing of form $kx\mathrm{e}^{4x} + 2\mathrm{e}^{4x}$
	$\int x\mathrm{e}^{4x}\,\mathrm{d}x = \frac{1}{4}x\mathrm{e}^{4x} - \frac{1}{4}\int \mathrm{e}^{4x}\mathrm{d}x$ oe	**M1**	**FT** part **(a)** providing of form $kx\mathrm{e}^{4x} + 2\mathrm{e}^{4x}$
	$\frac{x\mathrm{e}^{4x}}{4} - \frac{\mathrm{e}^{4x}}{16} + c$ oe	**A2**	**A1** for any 2 terms correct
9(a)	$\sqrt{40^2 + (-9)^2}$ soi	**M1**	
	$\frac{40}{41}\mathbf{i} - \frac{9}{41}\mathbf{j}$ oe	**A1**	mark final answer
9(b)(i)	$0 < k < 1$	**B1**	
9(b)(ii)	$\overrightarrow{OR} = \mathbf{p} + k(\mathbf{q} - \mathbf{p})$ or $\overrightarrow{OR} = \mathbf{q} + (1-k)(\mathbf{p} - \mathbf{q})$	**M1**	
	$\overrightarrow{OR} = (1-k)\mathbf{p} + k\mathbf{q}$	**A1**	
	$\lambda + \mu = 1 - k + k = 1$	**A1**	