Question	Answer	Marks	Partial Marks
6(c)(i)	$\frac{n!}{(n-3)!3!}+\frac{n!}{(n-2)!2!}$	**B2**	**B1** for either expression correct
	$\frac{n(n-1)(n-2)}{6}+\frac{n(n-1)}{2}$	**M2**	**M1** for either expression correct
	$\frac{n(n-1)(n-2+3)}{6}$ or $\frac{n^3-3n^2+2n}{6}+\frac{3n^2-3n}{6}$ leading to $\frac{1}{6}(n^3-n)$	**A1**	
6(c)(ii)	$n(n^2-25)=0$ oe	**M1**	
	$n = 5$ as the only solution	**A1**	
7	$\frac{\mathrm{d}}{\mathrm{d}x}(\sin 3x)=3\cos 3x$ soi	**B1**	
	$u=(1+\sin 3x)^4$ $\frac{\mathrm{d}u}{\mathrm{d}x}=4(1+\sin 3x)^3(3\cos 3x)$ soi	**M1**	**FT** *their* $3\cos 3x$
	$\frac{\mathrm{d}y}{\mathrm{d}x}=\frac{\sqrt{x}\left(4(1+\sin 3x)^3(3\cos 3x)\right)-(1+\sin 3x)^4\times\frac{1}{2}x^{-\frac{1}{2}}}{\left(\sqrt{x}\right)^2}$	**M1**	FT *their* $\frac{\mathrm{d}u}{\mathrm{d}x}$ *or their* $\frac{\mathrm{d}v}{\mathrm{d}x}$ but not both
	Correct derivative	**A1**	
	Evaluates *their* derivative at $x = 1.9$ and multiplies by h	**M1**	
	$0.651h$	**A1**	
8(a)	$x=6\sqrt{3}\sin 60 \quad y=-6\sqrt{3}\cos 60$ oe and completion to $9\mathbf{i}-3\sqrt{3}\mathbf{j}$	**B2**	**B1** for either x or y correct Allow **SC1** for verification that $9\mathbf{i}-3\sqrt{3}\mathbf{j}$ has a bearing of 120° and that $9\mathbf{i}-3\sqrt{3}\mathbf{j}$ has a magnitude of $6\sqrt{3}$
8(b)	$(5\mathbf{i}+16\mathbf{j})+3\left(9\mathbf{i}-3\sqrt{3}\mathbf{j}\right)$ oe, isw	**B1**	
8(c)	$29\mathbf{i}+16\mathbf{j}+t(-12\sqrt{3}\mathbf{j})$ oe, isw	**B1**	