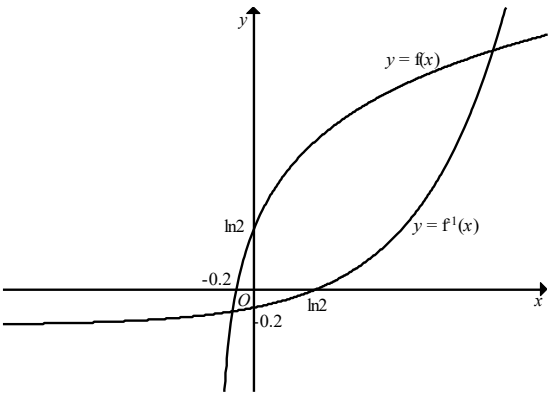
Question	Answer	Marks	Guidance
8(b)	$\begin{pmatrix}5\\-3\end{pmatrix}+\begin{pmatrix}-40\\42\end{pmatrix}t$	**B1**	**FT** on *their* answer to (a), must be numeric but not $\begin{pmatrix}-20\\21\end{pmatrix}$
8(c)	$\begin{pmatrix}-35t+4\\44t-2\end{pmatrix}-\begin{pmatrix}5-40t\\-3+42t\end{pmatrix}$	**M1**	Allow if in the incorrect order, **FT** on *their* (b), must have correct structure
	$\begin{pmatrix}5t-1\\2t+1\end{pmatrix}$	**A1**	
8(d)	$AB=\sqrt{(5t-1)^2+(2t+1)^2}$	**M1**	For attempt at modulus and square root using *their* answer to (c)
	$\sqrt{29t^2-6t+2}$	**A1**	
8(e)	$29t^2-6t-4=0$	**M1**	For attempt to solve the square of *their* answer to (d) $-6=0$
	0.49 only	**A1**	
9(a)(i)	-0.4	**B1**	
9(a)(ii)	$\mathrm{f}(x)\in\mathbb{R}$ oe	**B1**	
9(a)(iii)	$x=\ln(5y+2)$ oe $\mathrm{e}^x=5y+2$ oe	**M1**	For a correct attempt to find the inverse
	$\mathrm{f}^{-1}(x)=\dfrac{\mathrm{e}^x-2}{5}$	**A1**	Must be in the correct form
	$x\in\mathbb{R}$	**B1**	
9(a)(iv)		**4**	**B1** for two correctly shaped graphs in the correct quadrants **B1** for a correct graph for $y=\mathrm{f}(x)$ with correct intercepts **B1** for a correct graph for $y=\mathrm{f}^{-1}(x)$ with correct intercepts **B1** all correct with symmetry implied, exact intercepts and two points of intersection

Question	Answer	Marks	Guidance
9(b)	$g^2(x) = \left(\left(x^{\frac{1}{2}} - 4\right)^{\frac{1}{2}} - 4\right)$	**M1**	For a correct order of operations
	$\left(\left(x^{\frac{1}{2}} - 4\right)^{\frac{1}{2}} - 4\right) = -2$ leading to $x^{\frac{1}{2}} = 8,$	**M1**	**Dep** on previous M mark for a correct attempt at a solution. Must deal with $x^{\frac{1}{2}}$ correctly to obtain the final solution
	$x = 64$	**A1**	
10(a)	Common difference = $4\sin 3x$ soi	**B1**	
	$390 = \frac{20}{2}\left(2\sin 3x + 19\left(4\sin 3x\right)\right)$	**M1**	**M1** for attempt at sum to 20 terms using *their* common difference, equating to 390 and attempt to solve to obtain $\sin 3x = ...$
	$\sin 3x = 0.5$	**A1**	
	$x = \frac{\pi}{18}, \frac{5\pi}{18}$	**3**	**M1** for a correct attempt to solve, may be implied by one correct solution, allow if not exact **A1** for 1 correct solution **A1** for a second correct solution and no others in the range
10(b)(i)	Common ratio = $0.5\cos y$	**B1**	
	$-0.5 < 0.5\cos y < 0.5$	**B1**	Correct use of $\left\lvert\text{common ratio}\right\rvert < 1$
10(b)(ii)	$9 = \frac{20\cos y}{1 - 0.5\cos y}$	**B1**	For attempt to use sum to infinity equation correctly and solve
	$\cos y = \frac{18}{49}$ or 0.367...	**2**	**M1** for solution of *their* equation, must have r as a multiple of $\cos y,$ to obtain $\cos y = ...$
	1.19	**A1**	