Question	Answer	Marks	Guidance
6(c)	$3\left(y^{\frac{1}{3}}+\frac{5}{2}\right)^2=\frac{155}{4}$ soi	**M1**	**FT** an expression of correct form from **(a)**
	Rearranges as far as: $y^{\frac{1}{3}}=-\frac{5}{2}\pm\sqrt{\frac{155}{12}}$ soi	**A1**	
	$y = 1.31$ or -226	**A1**	
7	$\frac{a(1-r^3)}{1-r}=17.5$ oe or $a+ar+ar^2=17.5$ oe	**B1**	
	$\frac{a}{1-r}=20$	**B1**	
	Correctly eliminates a or eliminates r	**M1**	**FT** *their* equations providing at least **B1** awarded
	$20(1-r^3) = 17.5$ or $a^3-60a^2+1200a-7000=0$	**A1**	
	$r=\frac{1}{2}$, $a = 10$	**A2**	**A1** for either
8(a)	Product rule attempted	**M1**	at most one error
	$\left[\frac{dy}{dx}=\right]\sin x+x\cos x$ oe	**A1**	
8(b)	$\left[\text{When } x=\frac{\pi}{2}\right] y=\frac{\pi}{2}$	**B1**	
	$\left[\text{When } x=\frac{\pi}{2}\right]\frac{dy}{dx}=1$	**M1**	**FT** *their* derivative providing at least M1 awarded in **(a)**
	$y = x$	**A1**	
8(c)	$x\sin x + \cos x + c$	**B3**	**B2** for $x\sin x + \cos x$ or **B1** for $\left[\int x\cos x\,dx=\right] x\sin x-\int \sin x\,dx$
8(d)	$\frac{\pi}{4}\sin\frac{\pi}{4}+\cos\frac{\pi}{4}-(0+\cos 0)$	**M1**	
	0.26	**A1**	
9(a)	$(\ln(3x + 2))^2 + 1$ oe isw	**B1**	

Question	Answer	Marks	Guidance
9(b)	$\ln(3x + 2) = [\pm]\ 2$	**B1**	
	$e^2 = 3x + 2$	**M1**	**FT** $\ln(3x + 2) = k$, where $k > 0$
	$x = \frac{e^2 - 2}{3}$ as only solution	**A1**	
9(c)	$\ln(3\ln(3x + 2) + 2)$	**B1**	
	their$(3\ln(3x + 2) + 2) = e$	**M1**	**FT** *their* $gg(x)$ with at most one error
	$3\ln(3x + 2) + 2 = e$	**A1**	
	$\ln(3x + 2) = \frac{e - 2}{3}$ or 0.239[42…]	**M1**	**FT** *their* $a\ln(3x + 2) + b = e$, where a and b are non-zero constants
	$3x + 2 = e^{\frac{e-2}{3}}$ or $3x + 2 = 1.270[52…]$	**A1**	
	awrt −0.243	**A1**	
10(a)	$\left[v = \int \frac{-45}{(t+1)^2}\,dt = \right] \frac{-45(t+1)^{-1}}{-1} + C$ or better	**B2**	**B1** for $\left[v = \int \frac{-45}{(t+1)^2}\,dt = \right] k(t+1)^{-1}$
	$50 = \frac{their\,45}{0+1} + C$	**M1**	
	$[v =] \frac{45}{t+1} + 5$	**A1**	
10(b)	$[F(t) =] \quad [45\ln(t+1) + 5t]_1^{10}$	**B2**	**B1** for (*their* 45)$\ln(t + 1)$
	F(10) – F(1)	**M1**	**dep** on at least **B1**
	122 (m) or 121.7[13…] rot to 4 or more sf	**A1**	**dep** on all previous marks awarded