1	Either:	Obtain value $x^3 = 27$ from inspection, equation, …	B1	
		Obtain value $x^3 = 1$ similarly	B2	
		Obtain $x = 1$ and $x = 3$	B1	
	Or:	Attempt to square both sides obtaining 3 terms on LHS	M1	
		Attempt solution for x^3 of 3-term quadratic	DM1	
		Obtain $x^3 = 1$ and $x^3 = 27$	A1	
		Obtain $x = 1$ and $x = 3$	A1	[4]
2		State or imply that $\ln y = \ln A + x \ln b$	B1	
		Equate intercept on y-axis to $\ln A$	M1	
		Obtain $\ln A = 2.14$ and hence $A = 8.5$	A1	
		Attempt gradient of line or equivalent (or use of correct substitution)	M1	
		Obtain $0.47 = \ln b$ or equivalent and hence $b = 1.6$	A1	[5]
3	(i)	Substitute 2 and equate to zero or divide and equate remainder to zero	M1	
		Obtain $a = 2$	A1	[2]
	(ii) (a)	Attempt to find quadratic factor by division, inspection or identity	M1	
		Obtain $2x^2 + x - 3$	A1	
		Conclude $(x-2)(2x+3)(x-1)$	A1	[3]
	(b)	Attempt substitution of -1 or attempt complete division by $x + 1$	M1	
		Obtain 6	A1	[2]
4	(i)	Use $\sec^2\theta = 1 + \tan^2\theta$	B1	
		Attempt solution of quadratic equation in $\tan\theta$	M1	
		Obtain $\tan^2\theta - 12\tan\theta + 36 = 0$ or equivalent and hence $\tan\theta = 6$	A1	[3]
	(ii) (a)	Attempt use of $\tan(A - B)$ formula	M1	
		Obtain $\frac{5}{7}$ following their value of $\tan\theta$	A1√	[2]
	(b)	Attempt use of $\tan 2\theta$ formula	M1	
		Obtain $-\frac{12}{35}$	A1	[2]
5	(i)	Differentiate to obtain expression of form $ke^{\frac{1}{2}x} + m$	M1	
		Obtain correct $2e^{\frac{1}{2}x} - 6$	A1	
		Equate attempt at first derivative to zero and attempt solution	DM1	
		Obtain $\frac{1}{2}x = \ln 3$ or equivalent	A1	
		Conclude $x = \ln 9$ or $a = 9$	A1	[5]
	(ii)	Integrate to obtain expression of form $ae^{\frac{1}{2}x} + bx^2 + cx$	M1	
		Obtain correct $8e^{\frac{1}{2}x} - 3x^2 + 3x$	A1	
		Substitute correct limits and attempt simplification	DM1	
		Obtain $8e - 14$	A1	[4]

6	**(i)**	Obtain derivative of form $k(2t+1)^{-3}$	M1	
		Obtain $-4(2t+1)^{-3}$ or equivalent as derivative of x	A1	
		Obtain $\frac{1}{2}(t+2)^{-\frac{1}{2}}$ or equivalent as derivative of y	B1	
		Equate attempt at $\frac{dy}{dx}$ to -1	M1	
		Obtain $(2p+1)^3 = 8(p+2)^{\frac{1}{2}}$ or equivalent	A1	
		Confirm given answer $p = (p+2)^{\frac{1}{6}} - \frac{1}{2}$	A1	[6]
	(ii)	Use iteration process correctly at least once	M1	
		Obtain final answer 0.678	A1	
		Show sufficient iterations to 5 decimal places to justify answer or show a sign change in the interval (0.6775, 0.6785)	A1	[3]
		[0.7 $\rightarrow$ 0.68003 $\rightarrow$ 0.67857 $\rightarrow$ 0.67847 $\rightarrow$ 0.67846]		
7	**(i)**	Expand to obtain $4\sin^2 x + 4\sin x\cos x + \cos^2 x$	B1	
		Use $2\sin x\cos x = \sin 2x$	B1	
		Attempt to express $\sin^2 x$ or $\cos^2 x$ (or both) in terms of $\cos 2x$	M1	
		Obtain correct $\frac{1}{2}k(1-\cos 2x)$ for their $k\sin^2 x$ or equivalent	A1√	
		Confirm given answer $\frac{5}{2} + 2\sin 2x - \frac{3}{2}\cos 2x$	A1	[5]
	(ii)	Integrate to obtain form $px + q\cos 2x + r\sin 2x$	M1	
		Obtain $\frac{5}{2}x - \cos 2x - \frac{3}{4}\sin 2x$	A1	
		Substitute limits in integral of form $px + q\cos 2x + r\sin 2x$ and attempt simplification	DM1	
		Obtain $\frac{5}{8}\pi + \frac{1}{4}$ or exact equivalent	A1	[4]