Question	Answer	Marks	Guidance
(a)	Substitute $x = 4$, equate to zero and attempt solution	M1	
	Obtain $a = -7$	A1	
	Divide by $x - 4$ at least as far as the x term	M1	or use of identity or by inspection
	Obtain $2x^2 + x + 1$ and conclude $(x - 4)(2x^2 + x + 1)$	A1	
	Alternative method for question (a)		
	Divide by $x - 4$ at least as far as the x term	M1	
	Equate the remainder to zero	M1	
	Obtain $a = -7$	A1	
	Obtain $2x^2 + x + 1$ and conclude $(x - 4)(2x^2 + x + 1)$	A1	
		4	

Question	Answer	Marks	Guidance
(b)	Apply logarithms and use power law for $e^{3y} = 4$	**M1**	
	Obtain $\frac{1}{3}\ln 4$ or exact equivalent	**A1**	
	Use discriminant $\left[=1-8=-7\right]$ or equivalent to show no other roots	**B1**	AG – necessary detail needed
		3	