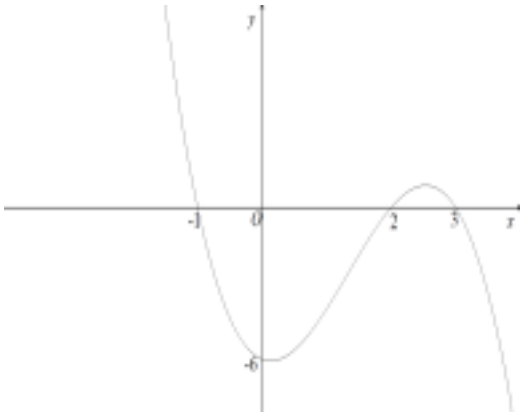
Question	Answer	Marks	Guidance
1(a)		**3**	**B1** for a well-drawn cubic graph in correct orientation Both arms extending beyond x-axis Maximum above x-axis **B1** for x-intercepts **B1** for y-intercept
1(b)	$x < -1$	**B1**	Dep on a cubic curve in the correct orientation and -1 correct on x-axis
	$2 < x < 3$ or $3 > x > 2$	**B1**	Dep on a cubic curve in the correct orientation and 2 and 3 correct on x-axis
2(a)	$\frac{dy}{dx} = \frac{(x^2+1)2e^{2x-3} - 2xe^{2x-3}}{(x^2+1)^2}$ oe or $\frac{dy}{dx} = \frac{2e^{2x-3}}{(x^2+1)} - \frac{2xe^{2x-3}}{(x^2+1)^2}$ oe	**3**	**B1** for $\frac{d}{dx}(e^{2x-3}) = 2e^{2x-3}$ seen in a quotient rule or product rule expression **M1** for correct method for differentiating a quotient or equivalent product **A1 FT** from *their* $2e^{2x-3}$
2(b)	When $x = 2$, $\frac{dy}{dx} = \frac{6e}{25}$	**M1**	For evaluation of *their* $\frac{dy}{dx}$ when $x = 2$
	$\frac{6e}{25} \times \frac{dx}{dt} = 2$ oe	**M1**	For correct substitution of *their* evaluated $\frac{dy}{dx}$ and $\frac{dy}{dt} = 2$ in a correct rates of change equation
	$\frac{dx}{dt} = \frac{25}{3e}$, $\frac{50}{6e}$	**A1**	
3(a)(i)	$x > \frac{1}{2}$	**B1**	Must be using x