Question			Answer	Mark	AO	Guidance
6	(a)		$x^3 = -1$ or $\frac{1}{8}$	M1	1.1	For attempting to solve as a quadratic in x^3 (May be implied by these correct answers for x^3)
			$x = -1$	A1	1.1	(Must be explicitly, separately, stated following $x^3 = -1$) Some working must be seen
			or $x = \frac{1}{2}$	A1	1.1	Answers only (no working or inadequate working) **SCB1** for each (max 2/3)
				[3]		
6	(b)		$\frac{dy}{dx} = 56x^6 + 49x^3 - 7$	M1 A1	3.1a 1.1	Attempt differentiate, at least two terms correct All correct
			$56x^6 + 49x^3 - 7 = 0$	M1	1.1	Setting their $\frac{dy}{dx} = 0$ and attempting to solve (must show attempt at solving the quadratic in x^3 or reach x=… from part (a)) Must see =0 here (may be implied by fully correct solutions only)
			$(8x^6 + 7x^3 - 1 = 0,\ x = -1$ or $x = \frac{1}{2})$			
			SPs are $(-1, 11.25)$ and $(0.5, -\frac{171}{64})$ or $(0.5, -2.67)$ (3sf)	A1	1.1	(Accept 11.3 or $\frac{45}{4}$) Coordinates must be correctly paired
				[4]		
6	(c)		$\frac{d^2y}{dx^2} = 336x^5 + 147x^2$	M1*	1.1	Attempt differentiate their $\frac{dy}{dx}$, allow one error only
			$x = \frac{1}{2} \Rightarrow \frac{d^2y}{dx^2} > 0$			$\frac{d^2y}{dx^2} = \frac{189}{4} = 47.25$ (not required but if given then must be correct for their value of x)
			Hence $x = \frac{1}{2}$ gives a minimum	A1ft	1.1	Must see both statements; no need to see calculation ft their 2nd derivative and their positive x
			$x = -1 \Rightarrow \frac{d^2y}{dx^2} < 0$	dM1	1.1	Substitute their −ve x into their $\frac{d^2y}{dx^2}$; may be implied by –189
			Hence $x = -1$ gives a maximum	A1ft	2.2a	www in this part, ft their -ve x value (-189 not required but if given then must be correct for their value of x)
				[4]		NB differentiating $8x^6 + 7x^3 - 1$ can achieve M1A0dM1A0 (max 2/4)