Question			Answer	Marks	AO	Guidance
15	(a)		$\frac{dy}{dx} = 6 - 3x^{\frac{1}{2}}$ **oe**	**B1** **B1**	**2.1** **1.1**	**B1** for each term may be unsimplified
			$6 - 3x^{\frac{1}{2}} = 0$ so $x^{\frac{1}{2}} = 2$ **oe** so $x = 4$	**M1**	**2.1**	Must see their $\frac{dy}{dx} = 0$ and attempt to solve to find x. If $\frac{dy}{dx} = 0$ not explicitly stated allow a maximum of one simple step seen eg. $\frac{dy}{dx} = 6 - 3x^{\frac{1}{2}} \Rightarrow 6 = 3x^{\frac{1}{2}}$ or correctly substitute $x = 4$ into their $\frac{dy}{dx}$ and attempt to evaluate and compare numerical result to zero. Do not accept just $6 - 3 \times 4^{\frac{1}{2}} = 0$ must see some working before achieving 0.
			$y = 6 \times 4 - 2 \times \left(\sqrt{4}\right)^3 = 8$ **AG**	**A1** **[4]**	**1.1**	Gain $x = 4$ or show that $x = 4$ leads to $\frac{dy}{dx} = 0$ with a minimal conclusion (eg so a turning point when $x = 4$) and shows $y = 8$ from $x = 4$ **www**
15	(b)	(i)	$\frac{d^2y}{dx^2} = -\frac{1}{2} \times 3x^{-\frac{1}{2}}$ **oe**	**M1**	**2.1**	**FT** their $\frac{dy}{dx}$ condone error in their coefficient
			$-\frac{1}{2} \times 3 \times 4^{-\frac{1}{2}} = -\frac{3}{4}$	**A1** **[2]**	**1.1**	Must see substitution if **M0** allow **SCB1** for $\left[\frac{d^2y}{dx^2} = \right] -\frac{3}{4}$ unsupported
	(b)	**(ii)**	$\left[\frac{d^2y}{dx^2} < 0\right.$ so local] maximum	**B1FT** **[1]**	**2.2a**	**FT** their answer to **(b)(i)** If no value is given in **(b)(i)** cao