

Question			Answer	Marks	AO	Guidance	
13			DR				
			$3x^2 + 3y^2 \frac{dy}{dx}$	B1	1.1	Attempt LHS derivative	Two non-constant terms
				M1	3.1a	Attempt product rule on RHS	
			$= 3y + 3x \frac{dy}{dx}$	A1	1.1	Correct on RHS	
			To find the stationary points let $\frac{dy}{dx} = 0$	E1	2.1	Explicitly set their derivative equal to zero	
			$y = x^2$	M1	3.1a	Attempt to solve for their y or their x	Alternate $x = y^{\frac{1}{2}}$
			$x^3 + (x^2)^3 = 3x(x^2) + 35$	M1	2.1	Substitute to get their polynomial in one variable	Alternate $y^3 - 2y^{\frac{3}{2}} - 35 = 0$
			$x^6 - 2x^3 - 35 = 0$				
			Let $p = x^3$, then $p^2 - 2p - 35 = 0$	M1	2.1	Transform their disguised quadratic	
			$p = 7$ or -5	M1	1.1	Solve their 3 term quadratic	
			$\Rightarrow x = \sqrt[3]{7}$ or $x = -\sqrt[3]{5}$	A1	3.2a	For both correct	A0 for decimal answer
				[9]			