

Q	Marking Instructions	AO	Marks	Typical Solution
8	Selects differentiation as the first step. At least one term correct	1.1a	M1	$y = 2x^5 + 5x^4 + 10x^3 - 8$ $\frac{dy}{dx} = 10x^4 + 20x^3 + 30x^2$ $10x^2(x^2 + 2x + 3) = 0$ $x = 0 \text{ or } x^2 + 2x + 3 = 0$ discriminant = $b^2 - 4ac = 4 - 12$ $= -8$ negative so no real solutions Only stationary point at (0, -8)
	Differentiates fully correctly	1.1b	A1	
	Equates their derivative to zero	1.1a	M1	
	States $x = 0$ is one solution or verifies $x = 0$ is a solution	1.1b	A1	
	Deduces the quadratic factor has no real roots using discriminant, completing the square, using formula Or uses a sketch from their calculator Or finds roots of quartic but discounts non-real roots (only real root is $x = 0$)	2.2a	M1	
	Deduces that there are no further stationary points and concludes that (0, -8) is the only one.	2.1	R1	
	Total		6	