underground mathematics

Group A

	The curve is .in.creasing for $x > 1$	**Has a local m.n.imum with y-coordinate 1**	Has a Point of inflexion @ $x = 0$
Has a stationary point at $(1, 1)$	$y = x^3 + 3x^2 - 9x + 6$		$y = 3x^4 - 4x^3 + 2$
Passes through $(0, 1)$		$y = 2x^3 + 9x^2 + 1$	$y = 1 - \frac{1}{4}x^4 - x^3$
Has an ..... number of stationary points			$y = x^5 - x^3 + 5$

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Group B

	The curve is increasing for $x > 1$	Has a local minimum with y-coordinate 1	How does 2 of these? Point of inflexion at $x = 0$
Has a stationary point at $(1, 1)$	$y = x^3 + 3x^2 - 9x + 6$	$y = \frac{x^3}{3} + \frac{x^2}{2} - 2x$	$y = 3x^4 - 4x^3 + 2$
Stationary points at $x = -3$, $x = 0$	$y = \frac{2x^3}{3} + 3x^2 + 4$	$y = 2x^3 + 9x^2 + 1$	$y = 1 - \frac{1}{4}x^4 - x^3$
Has an even number of stationary points	$y = (x-1)^2$	$y = x^2 + 1$	$y = x^5 - x^3 + 5$

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Group C

	The curve is .In..creasing for $x > 1$	Has a local m..imum with y-coordinate 1	
Has a stationary point at $(1, 1)$	$y = x^3 + 3x^2 - 9x + 6$	$(x+2)(x-1)$ $x^2 - x + 2x - 2$ $\frac{dy}{dx} = x^2 + x - 2$ $y = \frac{x^3}{3} + \frac{x^2}{2} - 2x$	$y = 3x^4 - 4x^3 + 2$
has 1 stationary point	$y = x^3 - 5x^2 + 6$	$y = 2x^3 + 9x^2 + 1$ $\frac{dy}{dx} = 6x^2 + 18x$ 0 = $x = -3$ $x = 0$	$y = 1 - \frac{1}{4}x^4 - x^3$
Has an .odd. number of stationary points		$x = 5$ $x = 3$ $(x-5)(x-3)$ $x^2 - 3x - 5x + 15$ $\frac{dy}{dx} = x^2 - 8x + 15$ $y = \frac{x^3}{3} - \frac{8x^2}{2} + 15x$	$y = x^5 - x^3 + 5$

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Group D

	The curve is Increasing for $x > 1$	Has a local Maximum with y-coordinate 1	Stationary point of inflection at $x = 0$
Has a stationary point at $(1, 1)$	$y = x^3 + 3x^2 - 9x + 6$	$y = \frac{x^3}{3} + \frac{x^2}{2} - 2x$ $y = \frac{x^3}{3} - 4x^2 + 8x$ $y = x^3 - 3x^2 - x + 1$	$y = 3x^4 - 4x^3 + 2$
Stationary points at $x = -3$ and $x = 0$		$y = 2x^3 + 9x^2 + 1$	$y = 1 - \frac{1}{4}x^4 - x^3$
Has an odd number of stationary points		$y = x^2 + 1$ $y = \frac{x^3}{3} - 4x^2 + 15x$ $y = (x-1)^2$	$y = x^5 - x^3 + 5$

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Group E

	The curve is .in..creasing for $x > 1$	Has a local minimum with y-coordinate 1	Has a stationary point at $(1, 1)$
Has a stationary point at $(1, 1)$	$y = x^3 + 3x^2 - 9x + 6$	$y = x^3 + 9x^2 - 21x + 12$ $y = (x-1)^2 + 1$	$y = 3x^4 - 4x^3 + 2$
y-intercept of 1		$y = 2x^3 + 9x^2 + 1$	$y = 1 - \frac{1}{4}x^4 - x^3$
Has an odd. number of stationary points	$y = (x-1)^2$	$y = x^2 + 1$	$y = x^5 - x^3 + 5$

Has a stationary point at $x = 0$ (of inflection)