EXCELLENCE PROBLEM. The curve $y=ax^3+bx^2+c$ goes through (1, 5) and has y *intercept* (0, 12). It has a stationary point at x=3. Find the equation of the curve and the coordinates of the stationary point.

Sub x = 0, y = 12: 12 = cSub x = 1, y = 5: 5 = a + b + 12-7 = a + b equ 1 $v' = 3ax^2 + 2bx$ sub y' = 0 when x = 30 = 27a + 6b0 = 9a + 2b equ 2 *Equ* 1×2 2a + 2b = -14 $Equ \ 2 \qquad 9a+2b=0$ Subtract 7a = 14*= 2* a = -9 b $y = 2x^3 - 9x^2 + 12$ $sub \ x = 3, \ y = -15$

Ans: a=2, b=-9, (3,-15)