**EXCELLENCE PROBLEM.**

***The curve y=ax3 +bx2 +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 = c***

***Sub x = 1, y = 5 : 5 = a + b + 12***

 ***-7 = a + b equ 1***

***yꞌ = 3ax2 + 2bx***

***sub yꞌ = 0 when x = 3***

***0 = 27a + 6b***

***0 = 9a + 2b equ 2***

***Equ 1 × 2 2a + 2b = - 14***

***Equ 2 9a + 2b = 0***

***Subtract 7a = 14***

 ***a = 2***

 ***b = -9***

***y = 2x3 – 9x2 + 12***

 ***sub x = 3, y = - 15***

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