Putting $x = 0$

$\therefore \boxed{9 = D}$

Putting $x = 1$

$1 - 12 - 30 + 9 = C + D$

$\therefore \boxed{C = -41}$

Putting $x = 2$

$16 - 48 - 60 + 9 = 2B + 2C + D$

$\Rightarrow 16 - 48 - 60 + 9 = 2B + 2C + 9$

$\Rightarrow 2B = 16 - 108 + 82$

$\therefore \boxed{B = -5}$

Putting $x = 3$

$81 - 108 - 90 + 9 = 6A + 6B + 3C + 9$

$\Rightarrow -117 = 6A - 30 - 123$

$\Rightarrow 6A = -117 + 123 + 30$

$\therefore \boxed{A = 6}$

$\therefore$ (1) becomes

$$y = x^{(4)} + 6x^{(3)} - 5x^{(2)} - 41x^{(1)} + 9$$

$$\Delta y = 4x^{(3)} + 18x^{(2)} - 10x^{(1)} - 41$$

$$\Delta^2 y = 12x^{(2)} + 36x - 10$$

$$\Delta^3 y = 24x^{(1)} + 36$$

$$\Delta^4 y = 24$$

$$\Delta^5 y = 0$$