Consider the function $f(x) = x^3 - 4x^2 - x + 6$, $x \epsilon \mathbb{R}$

The graph of f is translated two units to the left and 3 units up to form the function $g(x)$. Express $g(x)$ in the form $ax^3 + bx^2 + cx + d$ where $a, b, c, d \epsilon \mathbb{Z}$

$$f(x) = x^3 - 4x^2 - x + 6$$

f is translated two units to the left

and 3 units up to form $g(x)$

$$g(x) = f(x + 2) + 3$$

$$g(x) = (x + 2)^3 - 4(x + 2)^2 - (x + 2) + 6 + 3$$

$$g(x) = x^3 + 6x^2 + 12x + 8 - 4x^2 - 16x - 16 - x - 2 + 9$$

$$g(x) = x^3 + 2x^2 - 5x - 1$$