IB Calculus Problem 011

Consider the function f whose second derivative is $f''(x) = 3x - 1$.

The graph of f has a minimum point at $A(2; 4)$ and a maximum point at $B(-\frac{4}{3}; \frac{358}{27})$.

A. Use the second derivative to justify that B is a maximum.

B. Given that $f'(x) = \frac{3}{2}x^2 - x + p$, show that $p = -4$.

C. Find $f(x)$.