

Question 3

(25 marks)

- (a) Differentiate $\frac{1}{3}x^2 - x + 3$ from first principles with respect to x .

- (b) $f(x) = \ln(3x^2 + 2)$ and $g(x) = x + 5$, where $x \in \mathbb{R}$.
Find the value of the derivative of $f(g(x))$ at $x = \frac{1}{4}$.
Give your answer correct to 3 decimal places.

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