4. (12 points) (a) Give the limit definition of the derivative of a function \( f \) at a point \( a \).

(b) Use the limit definition of the derivative to find \( g'(x) \) for the function \( g(x) = 2x^2 - 3x \). [Be sure to show all of your work!]

(c) Use the Fundamental Theorem of Calculus to find \( \int_2^4 (4x - 3) \, dx \). [Note: You must show your work to receive credit.]