1. (2 points each) Using Leibniz notation (i.e., $\frac{dy}{dx}$, $\frac{dP}{dt}$, etc.), find derivatives for each of the following functions.

(a) $F = \left(\sqrt[4]{\frac{4t^3}{\sqrt{t}}}\right) + 13\ln(17 + \cos(9/2))$ (simplify your answer)

(b) $g = 7e^r r^3$

(c) $u = \frac{8\tan \theta}{\theta^2 + 3}$
2. (2 points) Find the $x$-value for each point on the graph of $h(x) = 2x^3 + 5x + 37$ where the line tangent to the curve is perpendicular to the line $x + 29y = 58$.

3. (2 points) Let $f(x) = 3x^2 - 4x$.

   Use the definition of a derivative as a limit to prove that $f'(x) = 6x - 4$.

   Show each step in your calculation and be sure to use proper terminology in each step of your proof.