1. (4 pts) Find an equation of the line which is tangent to the curve \( y = x^3 - x^2 - 6x \) at its positive \( x \)-intercept.
2. (2 pts ea) Using Leibniz notation (i.e., \( \frac{dy}{dx} \), \( \frac{dP}{dt} \), etc.), find derivatives for each of the following functions.

(a) \( h = 4t^2 - 3t + e^2 \)

(b) \( q = r^3e^r - 5 \)

3. (2 pts) Find the derivative of the function below. Simplify your answer fully.

\[
f(x) = \left( \frac{x\sqrt{x}}{\sqrt[3]{x}} \right)^{12}
\]
1. (4 pts) Find an equation of the line which is tangent to the curve \( y = x^3 + 3x^2 - 10x \) at its positive \( x \)-intercept.
2. (2 pts ea) Using Leibniz notation (i.e., $\frac{dy}{dx}$, $\frac{dP}{dt}$, etc.), find derivatives for each of the following functions.

(a) $h = 2t^3 - 4t^2 + \pi^2$

(b) $q = r^4e^r + 7$

3. (2 pts) Find the derivative of the function below. Simplify your answer fully.

$$f(x) = \left(\frac{x\sqrt{x}}{\sqrt{x}}\right)^{18}$$