1. Using Leibniz notation \( \frac{dy}{dx}, \) etc, find the derivatives of the following. Do not simplify.

(a) (2 points) \( f(x) = \frac{\sqrt{x} - 10x^5}{x^3} \)

(b) (2 points) \( g(t) = 3t^e e^t + \pi^e e^t + \pi^e e^\pi \)

(c) (2 points) \( h(z) = \frac{z^3 + \sin(2)z - \ln(4)}{e^z - 17z} \)
2. (4 points) Let

\[ f(x) = \frac{1}{3}x^3 - x^2 + 5x + \frac{2}{3} \]

Find the equations of all lines which are both tangent to \( f \) and parallel to the line \( y = 4x + 6 \).