Name ____________________________________________

• Show sufficient work to justify each answer.
• No calculators, notes, books, etc allowed.
• You have 15 minutes for this quiz.

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

(a) (2 points) \( f(x) = \frac{\sqrt{x} - 10x^5}{x^7} \)

(b) (2 points) \( g(t) = 6t^6e^t + \pi^e e^t + \pi^e e^\pi \)

(c) (2 points) \( h(z) = \frac{z^6 + \sin(3)z - \ln(6)}{e^z - 18z} \)
2. (4 points) Let 

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

Find the equations of all lines which are both tangent to \( f \) and parallel to the line \( y = 2x + 8 \).