1. \( g \) or \( h \) (circle one). (20pts) Is function \( g(x) \) or function \( h(x) \), the derivative of function \( f(x) \)?

\[ f'(x) = g(x) \]

2. (20pts) Find the derivative of \( f(x) = 3\sqrt{x} + 4x^2 - 5x + 2 \).

\[ f(x) = 3x^{1/2} + 4x^2 - 5x + 2 \]

\[ f'(x) = \frac{3}{2}x^{-1/2} + 8x - 5 \]

3. (20pts) If \( p(t) = 2 \cdot (1.04)^t \) is the amount of profit in rupees after \( t \) months for \( t \geq 0 \), what is the derivative?

\[ p'(t) = 2 \cdot \ln(1.04)(1.04)^t \] rupees per month

4. (10pts) (10pts) Find the derivative of \( f(x) = \ln \left( \frac{x^2}{5} \right) \).

\[ f(x) = 2\ln(x) - \ln(5) \]

\[ f'(x) = 2 \left( \frac{1}{x} \right) = \frac{2}{x} \]