Instructions: Include all relevant work to get full credit.

Quiz #9

1. Find the derivative of the following functions (*You don't have to simplify*):

a.
$$f(x) = \log_{10} \sqrt{x^2 - 1}$$
 [2]

b. $g(x) = \ln(x + \ln x^2)$

2. Find
$$\frac{dy}{dx}$$
 if
a. $y = (\sin x)^{\ln x}$

b.
$$x^y = y^x$$
 [2]

3. Use logarithmic differentiation to find the derivative of the
$$y = \frac{\sqrt{x^2 + 4} \cdot e^{x^2 + 3x}}{\sqrt[3]{5 - 2x^3}}$$
 [2]

[2]

[2]