

Math 124 Quiz #4
April 29, 2008

Name: _____

Show all work.

1. Differentiate the following using rules from sections 3.1 and 3.2.

(a) (2 pts.) $h(x) = 8\sqrt[4]{x} - 2x + 5$

(b) (3 pts.) $y = 5t^2e^t - 1$

2. (3 pts.) Find the values of x for which the slope of $g(x) = \frac{1}{x^2}$ is equal to $-\frac{1}{4}$.

3. (2 pts.) What is $f^{(52)}(t)$, the 52nd derivative, of $f(t) = 2e^t + 5t^{49}$?

Note: Here are **some** derivative rules.

$$\frac{d}{dx}[x^n] = nx^{n-1}$$

$$\frac{d}{dx}[c \cdot f(x)] = c \cdot f'(x)$$

$$\frac{d}{dx}[f(x) \cdot g(x)] = f'(x) \cdot g(x) + f(x) \cdot g'(x)$$