

Math 1121

Homework #6

Section 4.3 #33/39, #39/45

Section 4.4 #27/35

Section 2.5 #58/62

4.3 #33/39

$$q(y) = 4y^2 (y^2+1)^{5/4}$$

product rule: $q'(y) = 4y^2 \cdot \frac{5}{4} (y^2+1)^{1/4} \cdot 2y + (y^2+1)^{5/4} \cdot 8y$

4.3 #39/45

$$y = \frac{3x^2-x}{(2x-1)^4}$$

quotient rule:

$$y' = \frac{(2x-1)^4 \cdot (6x-1) - (3x^2-x) \cdot 4(2x-1)^3 \cdot 2}{(2x-1)^8}$$

4.4 #27/35

$$y = 3 \cdot 4^{x^2+2}$$

$$y' = 3 \cdot 4^{x^2+2} \ln 4 \cdot 2x$$

2.5 #58/62

$$5^x = 12$$

$$\ln 5^x = \ln 12$$

$$x \ln 5 = \ln 12$$

$$\boxed{x = \frac{\ln 12}{\ln 5}}$$