Math 1100 Lesson # 9 **Name:**_____

Directions:Work all problems in the assignment. If you need more room use the back of the page to complete the problem.

Section 4.4

Problem 34. Write the expression as a sum, difference, or multiple of logarithms using properties of logarithms.

$$ln\left(\frac{xy}{z}\right)$$

Problem 40. Write the expression as a sum, difference, or multiple of logarithms using properties of logarithms.

$$ln\left(\frac{2x}{\sqrt{x^2-1}}\right)$$

Hint: Make sure you factor the polynomials in the expression.

Problem 48. Write the expression as a logarithm applied to a single expression.

$$2\left[ln(x)+\frac{1}{4}ln(x+1)\right]$$

Problem 72. **Demand:** The demand function for a product is given by

$$p = 250 - 0.8\ e^{0.005x}$$

where p is the price per unit and x is the number of units sold. Find the number of units sold for prices of (a) \$200, and (b) \$125.

Section 4.5

Problem 12. Find the derivative of the function.

$$y = (ln(x^2))^2$$

Problem 22. Find the derivative of the function.

$$y = ln(x\sqrt{4 + x^2})$$

Problem 48. Determine the equation for a tangent line to the graph of the following function at the given point.

$$y = \frac{ln(x)}{x} \qquad (e, \frac{1}{e})$$

Problem 54. Find dy/dx implicitly.

$$4xy + ln(x^2y) = 7$$

Problem 78. **Demand Function:** Solve the demand function in

$$x = \frac{500}{ln(p^2 + 1)}$$

for p in terms of x. Use the result to find dp/dx. Then find the rate of change when $p = \$10$. What is the relationship between this derivative and dx/dp?

Student ID: _____

Dept. & Number: Math 1100

Lesson Number: 9

Name: _____

Address: _____
Street Apt.

_____
City State Zip Code

_____

Date: _____

Grade: _____

Read By: _____

Comments: _____

_____

_____

_____

_____