Section 3.9: Derivatives of Logarithmic and Exponential Functions

MATH 130: Calculus I

Due: Monday, March 25, 2019 at 12:20pm Name (Print): _____

After reading Section 3.9 (pages 208-215 in the text), respond to the following questions **on this handout**. Be sure to staple your pages together before turning it in. **You must answer all parts to all questions to earn full credit!!!** See the salmon homework guidelines handout for details. You are encouraged to take additional notes wherever you are keeping your class notes.

Response Section

1. The inverse properties of $\ln x$ and e^x at the beginning of the section are a review from precalculus (and chapter 1). Write them here.

2. On the first page of the section, they show how to obtain the formula for the derivative of $y = \ln x$ using the inverse properties and implicit differentiation. Copy that here.

3. Write down Theorems 3.15 and 3.16: Derivative of $\ln x$ and Derivative of b^x.

4. (a) Write down Theorem 3.18: Derivative of $\log_b x$.

(b) Note that $e > 0$ so this theorem should hold for differentiating $\log_e x = \ln x$. Explain how even though this looks different at first glance, it still matches the results in Theorem 3.15 for base e logarithms.

5. At the end of the section on page 215, the steps to complete logarithmic differentiation are outlined in blue. Write them down here.

Questions/Exercise Section

6. Write down at least two questions you have on the reading. OR if you have NO questions, do exercise 42 in Section 3.9 (page 215). Be sure to show all steps for full credit! See the salmon homework guidelines handout for details.

Reflection Section

7. Write **two or three** sentences reflecting on the progress of your recent work in the course. See the salmon homework guidelines handout for details.

Time Section

8. How much time did you spend on this reading assignment? _____