

Section 5.5: Substitution Rule

MATH 131: Calculus II

Your Name (Print): _____

Due: Friday, February 7, 2020 at 1:30pm

After reading Section 5.5 (pages 388-395 in the text), respond to the following questions **on this handout**. Be sure to staple your pages together before turning it in if they are not double sided. **You must answer all parts to all questions to earn full credit!!! Also, use FULL SENTENCES to answer questions that require words.** 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. Let $f(x) = \ln(x^4 - 7)$.

(a) What is the **derivative** of $f(x)$? What rule did you use to find the derivative and why?

(b) Given your results for $f'(x)$ and the relationship between differentiation and integration, what new indefinite integral formula do you have? Briefly explain. (I am not looking for a general formula here, just a **very specific** one in relation to the function you were given and derived at the beginning of this question.)

2. State Theorem 5.6: Substitution Rule for Indefinite Integrals.

3. State the Procedure for the Substitution Rule (Change of Variables).

4. If we decide to make the substitution $u = x^2 + 8$ in order to evaluate the definite integral $\int_2^4 f(x)dx$, what would the new limits of integration be? Show your work and briefly explain why.

Questions/Exercise Section

5. Write down at least two questions you have on the reading. OR if you have NO questions, do exercise 34 in Section 5.5 (page 396). Be sure to show your substitution clearly and all other steps for full credit! See the salmon homework guidelines handout for details.

Reflection Section

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

Time Section

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