

Section 6.5: Length of Curves

MATH 131: Calculus II

Your Name (Print): _____

Due: Wednesday, February 26, 2020 at 1:30pm

After reading Section 6.5 (pages 451-455 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. To derive a formula for the area between curves we used estimating rectangles to estimate the area. In a similar fashion, what do we use to derive a formula for arc length to estimate the curve?

2. Draw Figure 6.55 where we see how the curve is approximated.

3. How is the Mean Value Theorem used in the derivation of the formula for arc length? Why is it helpful? Explain briefly, making it clear what the Mean Value Theorem says within your explanation.

4. State the definition of the arc length of $y = f(x)$.

5. In Example 3 on pages 453-454, the authors want to confirm the formula for the circumference of a circle. (Isn't this neat?!!!) They do this by finding the arc length of one-eighth of the circle. Why don't they find the arc length of half of the circle? Wouldn't it be easier? Explain briefly.

Questions/Exercise Section

6. Write down at least two questions you have on the reading. OR if you have NO questions, do exercise 12 in Section 6.5 (page 456). Be sure to show your work 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 work so far in the course. See the salmon homework guidelines handout for details.

Time Section

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