

Section 5.1: Approximating Areas Under Curves

MATH 131: Calculus II

Name (Print): _____

Due: Thursday, January 23, 2020 at 10:30am in lab

After reading Section 5.1 (pages 338-346 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. If we graph a velocity function, what does the area under the curve represent?
2. Consider $f(x) = x^2$ on the interval $[0, 2]$.
 - (a) Draw a graph of $f(x)$ on the interval and draw four estimating rectangles using right endpoints.
 - (b) If you approximate the area under f on this interval with a right Riemann sum, will it be an over approximation or an under approximation? (Hint: use your diagram above.)
 - (c) What property of f tells you what kind of approximation you will have? (Hint: Use your diagram.)
3. Write out the terms of the following sum and then find the sum: $\sum_{k=2}^5 (k^2 + 3)$.
4. State Theorem 5.1: Sums of Powers of Integers. Make sure to include hypotheses!

5. State the (entire!) definition for Riemann Sums in Sigma Notation given on page 345.

Questions/Exercises Section

6. Write down at least two questions you have on the reading. OR if you have NO questions, do exercise 6(a) in Section 5.1 (page 347). 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 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? _____