

Review Sheet for Exam 5

The fifth exam will cover section 5.5, chapter 6, and section 7.1.

Concepts

1. Explain u -substitution. In particular, explain how it follows from the chain rule.
2. Explain the washer method.
3. Explain the shell method.
4. Explain how to find the work required to move an object from point a to point b along the x -axis if force is given by $f(x)$.
5. Explain why $\frac{1}{b-a} \int_a^b f(x) dx$ is the average of $f(x)$.
6. What does it mean for a function $f(x)$ to be one-to-one? What is the inverse of a function? Why do we need a function to be one-to-one if we want to define its inverse?
7. Explain how we derive the formula $(f^{-1})'(a) = \frac{1}{f'(f^{-1}(a))}$.

Here are some good computational problems from the Chapter Review Sections in the book. Only one is an even-numbered problem. If you're unsure about your answer to it, ask on Monday!

Chapter 5 Review # 19, 21, 23

Chapter 6 Review #5, 9, 11, 15, 19, 21, 27, 29,

Chapter 7 Review #2, 3