

Study guide for quiz 08

Quiz problems include both the lecture contents and homework problems.

1. Section 5.1, 5.2: Read and understand the meaning of a partition P and its norm $\|P\|$, and the meaning of a Riemann sum. Study how to express a definite integral as the limit of Riemann sum and how to compute it as $\lim_{n \rightarrow \infty} \sum_{k=1}^n \cdots$ when P is the uniform partition ($\Delta x_k = \Delta x = \frac{b-a}{n}$). Practice the procedure on simple cases such as $\int_a^b x^k dx$ for $k = 1, 2, 3, \dots$.
2. Section 5.3: Practice on how to express a definite integral as the limit of Riemann sum and conversely, practice how to identify a limit of Riemann sum as a definite integral.
3. Section 5.4: Study the statement and proof of Fundamental Theorem of Calculus in both Part 1 and Part 2. Try to apply them by making up some examples to both by yourself. In particular, how to find a definite integral from antiderivative of the integrand.
4. Section 5.5, part 1: Practice basic problems of indefinite integrals using substitution method. Understand the meaning of ' $\frac{du}{dx} dx = du$ ' and how to actually use it.