Calculus II, Spring 2023 (http://www.math.nthu.edu.tw/~wangwc/)

Thomas' Calculus Early Transcendentals 13ed

Study guide for quiz 04

Quiz problems include both the lecture contents and homework problems.

1. Section 10.7:

   Study the Convergence Theorem for Power Series.

   Review the meaning of "radius of convergence" for a power series. For example, can you describe what it means by "the radius for $\sum c_n(x-2)^n$ is 1"? (Read "Corollary of Theorem 18" on page 634)

   Study how to test a power series for convergence and how to find the radius of convergence.

   Study multiplication and division of two power series.

2. Section 10.7:

   Study the statement of Term by Term Differentiation Theorem and Term by Term Integration Theorem. Use them to derive the power series representation of $\ln(1 \pm x)$ and $\tan^{-1}(x)$.

3. Section 10.8: Memorize the definition of Taylor polynomial of order n generated by f at $x = a$ and Taylor series generated by f at $x = a$ (i.e. $T_{f,a}(x)$). Study how to generate $T_{f,a}(x)$ and why it is possible that $T_{f,a}(x) \neq f(x)$, $x \neq a$.