

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, what does it mean by "the radius for $\sum c_n(x-2)^n$ is 1"? (Read the statement of "Corollary to Theorem 18" on page 634 and define the radius of convergence in your own words).

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

Study algebraic manipulations of two power series such as multiplication, division and composition.

2. Section 10.7:

Study and memorize the statements of Term by Term Differentiation Theorem and Term by Term Integration Theorem.

Study how to use them to derive the power series representation of $\ln(1 \pm x)$ and $\tan^{-1}(x)$.

Study how to use them to identify a function from its power series representation such as Example 5 on page 637.

3. Section 10.8 (Part I):

Memorize the definitions 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 $T_{f,a}(x)$ from definition and how to compute the radius of convergence for $T_{f,a}(x)$.