Reading Assignment # 12

Math 9 - Prof. Orellana

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Read Section 12.10 and then answer the following questions.

1. What problems are investigated in this section? What is the objective of this section?

2. What does Theorem 5 say and how does your book derived this result?

3. What is the Taylor series of the function f about a?

4. What is the Maclaurin series and how is it related to the Taylor series?

5. Read the paragraph after example 1 and explain to me what it says.

6. State Theorem 8 and explain to me in your own words what it says.

7. What turns to be the most useful fact in proving that the remainder, $R_n(x)$ goes to zero as n goes to zero?

8. Read the explanation of why Taylor's inequality is true and explain to me why it works.

9. What fact is useful when we want to apply Taylor's inequality?

10. Read example 8 and then close your book and find the Taylor series representation of $(x + 1)^k$. Show your work.

11. What is the binomial series and what is the radius of convergence?

12. What is Example 10 illustrating?

13. Read the subsection "Multiplication and Division of Power Series" and then use it to find a Taylor series for $e^x \cos(x)$ and $cot(x)$.