Reading Assignment # 7

Math 9 - Prof. Orellana

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Read Section 12.1 and 12.2.

1. Give a summary of the contents of Section 12.1. What is the objective of this section?
2. Give the definition of a sequence and an example.
3. How can we visualize sequences?
4. Give the precise definition of limit of a sequence? Compare it with the informal definition, what is the difference?
5. What does it mean to say that a sequence diverges to ∞? Be precise.
6. What are the limit laws for sequences?
7. What does the squeeze theorem for sequences say?
8. For what values of r is the sequence $\{r^n\}$ convergent? Make sure that you explain your answer carefully.
9. State the monotonic sequence theorem and explain all the terms used in this statement. Look at the even problems at the end of the section and find one problem that can be solved using this theorem.
10. There is a theorem that uses absolute values, state the theorem.
11. Give a definition of a series (infinite series). Give an example.
12. Describe a method for finding the sum of a series that converges in general.
13. What is the geometric series? Look at the problems at the end of the chapter and identify at least three even problems that have a geometric series in them. When does the geometric series converges?

14. Explain Figure 1.
15. Read the first note on the side of page 726. In your own words explain what it says.
16. What is a telescoping series? What is the harmonic series?
17. What does Note 2 says?
18. Give a test for divergence. How does this test follow from Theorem 6?
19. What does theorem 8 say?
20. What two sequences are associated with every series?
21. What examples in Sect. 12 had series that converged?