

Study Guide for Chap 10

1. Review the convergence or divergence for $\int_1^\infty \frac{1}{x^p} dx$ and $\int_0^1 \frac{1}{x^p} dx$ for $0 < p < 1$, $p = 1$ and $p > 1$, respectively. Be able to compute them and try to memorize the results. They play a key role in the convergence test for improper integrals and the convergence test for series with positive terms.
2. Study the definition of convergence of a sequence (page 552).
3. Study and memorize the results of the examples in Theorem 5 of Section 10.1.
4. Study the definition of convergence of a series (page 563).
5. Study the comparison tests in Theorem 10 and Theorem 11 of section 10.4. Practice the convergence tests given in the homework problems. Be able to quickly find which series to compare with the series at hand, then use the comparison tests to get the conclusion.
6. Study the statements of the integral test, the ratio test and the root test for series with positive terms ($a_n > 0$). Then for each of the test, give an example of a series that can be found convergent/divergent using the test.