

1. You should be able to write down the Taylor polynomials centered at 0 and also at any other value a i.e. Taylor series expansion in powers of $(x - a)$.
2. You should know both the integral form and the Lagrange form of the remainder and be able to use them to bound the error. Most importantly, be sure that you understand how to compute the degree of the Taylor polynomial required in order for the error to be smaller than some given amount.
3. You should know the Taylor expansions of some familiar functions – that is you should be able to recognize them instantly.
4. The proof of Taylor's Theorem (Theorem 11.5.1) *is included*. DO NOT SKIP IT.
5. You should be able to use the L'Hopital's rule. Pay particular attention to indeterminate forms which are not in the standard $0/0$ or ∞/∞ form.
6. Make sure you know how to evaluate improper integrals – they are of two types. The limits might be infinite or the function itself might blow up at some point. You should be able to set up the appropriate proper integral and then take limits.
7. You should be able to make simple substitutions and manipulate the Σ notation.
8. You should know the definition of convergence of a series via partial sums. You should definitely be able to derive the formula for the geometric series through partial sums.
9. You should be able to pick and use all the standard comparison tests – including the integral test and the limit comparison test – as well as the root and the ratio test. The proofs for the last two *are included*.
10. You should know the definition of absolute and conditional convergence, as well as the alternating series test. Proof of why the alternating series test works is included.
11. Finally, you should know the definitions of the radius of convergence, and the interval of convergence of a power series. You should be able to compute the interval of convergence, by first applying the root or the ratio test *and then separately testing the end points*.
12. If you know all of the above you will do fine in the test. GOOD LUCK!