**Summary of Convergence and Divergence Tests for Infinite Series**

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| Test | Series | Convergence or Divergence | Comments | When to Use Strategies |
| *n*th term test for divergence |  | Diverges if  | Inconclusive if  | If, at glance, , then use *n*th term test |
| Geometric Series |  | Converges if Diverges if  | If the series converges,  | If series has form or  |
| p-series |  | Converges if Diverges if  |  | If series has form  |
| Integral Test |  | Converges if convergesDiverges if diverges | The function *f(n)* must be a continues, positive, and decreasing. | If , and is easily evaluated. Hypotheses must be satisfied |
| Individual Comparison Test |  | If converges and for every n, then also convergesIf diverges and for every n, then also diverges | The comparison series ( must be supplied by you.To prove convergence, the comparison series must converge and be a larger series.To prove divergence, the comparison series must diverge and be a smaller series | If the series has a form similar to that of a p-series or geometric series. In particular, if is a rational function or is algebraic (features roots of polynomials), then the series should be compared to a p-series. |
| Limit Comparison Test |  | If for some positive real number *L*, then both series converge or both diverge. | The comparison series ( must be supplied by you. To prove convergence, the comparison series must convergeTo prove divergence, the comparison series must diverge | If determining a bounded sequence proves to be difficult, then Limit Comparison Test should be used over the Individual Comparison Test |

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| Test | Series | Convergence or Divergence | Comments | When to use Strategies |
| Ratio Test |  | If then the series converges absolutelyIf then the series diverges | Inconclusive if  | Series that involve factorials or other products, such as a constant raised to the th power |
| Root Test |  | If then the series converges absolutelyIf then the series diverges | Inconclusive if . Useful when the nth term involves nth powers.  | If is of the form  |
| Alternating Series test |  | Converges if: | Applies only to alternating series.  | If of the form or  |
| Absolute Convergence |  | If converges then converges absolutely.  | If a series converges but does not converge absolutely, it conditionally converges.  | Used if there are negative terms present in the series |
| Telescoping Series |  | Converges if = R | Can be rewritten using partial fraction decomposition. When finding the partial sum, many of the terms will cancel out. | No set form. Be careful to make sure all terms will cancel before determining convergence or divergence. |