Guidelines for choosing a test when determining convergence or divergence of series.

The following are rules of thumb that can be used to choose an appropriate test to check the convergence or divergence of a series. They are not infallible and they do not replace the experience given by doing as many problems as you can.

1. Determine the general behavior of the series when n is very big. This should give an educated guess as to whether the series converges or diverges.

2. Check whether the general term of the series converges to zero. If it does not, use the Divergence Test.

3. If the general term of the series is given by a fraction of polynomials, it may be useful to write its partial fraction decomposition to see if it is a telescopic series.

4. Check whether the series is a geometric series or a p-series.

5. If the general term of the series is similar to a geometric series or a p-series, the Comparison Test may be useful.

6. If the general term of the series is similar to a geometric series or a p-series, when n is very big, the Limit Comparison Test may be useful.

7. If the general term of the series can be expressed as a continuous function, and that function is easy to integrate, the Integral Test may be useful.

8. If the general term of the series has n in exponents or n in factorials, the Ratio Test may be useful.

9. If the general term of the series is raised to the n, the Root Test may be useful.

10. If the terms of the series alternate between positive and negative values, the Leibniz Test may be useful.