- **The Ratio Test**

  (i) If $\lim_{n\to\infty} \left|\frac{a_{n+1}}{a_n}\right| = L < 1$, then the series $\sum_{n=1}^{\infty} a_n$ *converges absolutely* [1]

  (ii) If $\lim_{n\to\infty} \left|\frac{a_{n+1}}{a_n}\right| = L > 1$ (including $L = \infty$), the series $\sum_{n=1}^{\infty} a_n$ diverges.

  (iii) If $\lim_{n\to\infty} \left|\frac{a_{n+1}}{a_n}\right| = 1$, no conclusion.

- **The Root Test**

  (i) If $\lim_{n\to\infty} \sqrt[n]{|a_n|} = L < 1$, then the series $\sum_{n=1}^{\infty} a_n$ *converges absolutely.*

  (ii) If $\lim_{n\to\infty} \sqrt[n]{|a_n|} = L > 1$ (including $L = \infty$), then the series $\sum_{n=1}^{\infty} a_n$ diverges.

  (iii) If $\lim_{n\to\infty} \sqrt[n]{|a_n|} = 1$, no conclusion.

[1] Absolute convergence means $\sum_{n=1}^{\infty} |a_n|$ converges (and $\sum_{n=1}^{\infty} a_n$ converges).