Exemplo:

Consideremos a série $\displaystyle\sum_{n=1}^{+\infty} \frac{n^6}{7+5^n}$ $\quad a_n > 0$

Ora:

$$\lim_{n\to+\infty} \frac{a_{n+1}}{a_n} = \lim_{n\to+\infty} \frac{\dfrac{(n+1)^6}{7+5^{n+1}}}{\dfrac{n^6}{7+5^n}} =$$

$$= \lim_{n\to+\infty} \left(\frac{n+1}{n}\right)^6 \cdot \frac{7+5^n}{7+5^{n+1}} =$$

$$= \lim_{n\to+\infty} \underbrace{\left(\frac{n+1}{n}\right)^6}_{\xrightarrow{n\to+\infty}\ 1^6=1} \cdot \frac{\overbrace{\dfrac{7}{5^n}}^{\xrightarrow{n\to+\infty} 0} + 1}{\underbrace{\dfrac{7}{5^n}}_{\xrightarrow{n\to+\infty} 0} + 5} = \frac{1}{5} < 1$$

Logo, pelo Critério de d'Alembert:

$$\sum_{n=1}^{+\infty} \frac{n^6}{7+5^n} \text{ é convergente}$$