Example 6 from §23.

$$\sum_{n=0}^{\infty} 2^{-n} X^{3n} = 1 + \tfrac{1}{2}X^3 + \tfrac{1}{4}X^6 + \tfrac{1}{8}X^9 + \cdots$$

$$= 1 + 0X + 0X^2 + \tfrac{1}{2}X^3 + 0X^4 + 0X^5 + \tfrac{1}{4}X^6 + 0X^7 + 0X^8 + \tfrac{1}{8}X^9 + \cdots$$

Thus $\lim \sqrt[n]{|a_n|}$ does not exist.

$\liminf \sqrt[n]{|a_n|} = 0$

$\limsup \sqrt[n]{|a_n|} = ?$ $\qquad a_n = \begin{cases} 0 & n \bmod 3 = 1 \\ 0 & n \bmod 3 = 2 \\ 2^{-\frac{n}{3}} & n \bmod 3 = 0 \end{cases}$

$\limsup \sqrt[n]{2^{-n/3}} = \limsup 2^{-\frac{1}{3}} = 2^{-\frac{1}{3}}$.

Thus $R = 2^{\frac{1}{3}} \approx 1.25992$