Rudin Chapter 3: Some Special Sequences

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Proposition:

1. If $p > 0$ then $\lim_{n\to\infty} \frac{1}{n^p} = 0$
2. If $p > 0$ then $\lim_{n\to\infty} \sqrt[n]{p} = 1$
3. $\lim_{n\to\infty} \sqrt[n]{n} = 1$
4. If $p > 0$ and α is real, then $\lim_{n\to\infty} \frac{n^\alpha}{(1+p)^n} = 0$
5. If $|x| < 1$ then $\lim_{n\to\infty} x^n = 0$