

Proposition 0.0.1.

$$\begin{aligned}\lim_{n \rightarrow \infty} \frac{1}{n^k} &= 0 \quad \text{for any } k > 0. \\ \Leftrightarrow \left| \frac{1}{n^k} - 0 \right| < \epsilon, \epsilon > 0, n > N \in \mathcal{N} \\ \Leftrightarrow \frac{1}{n^k} < \epsilon \quad \text{since } n^k > 0\end{aligned}$$