Proof. Let $N > \epsilon^{-\frac{1}{k}}$ (by Archimedean Property of Natural Numbers) and $n \geq N$. Then

$$\begin{aligned} n &\geq \left(\frac{1}{\epsilon}\right)^{\frac{1}{k}} \\ \Rightarrow n^k &> \left(\frac{1}{\epsilon}\right) \\ \Rightarrow \frac{1}{n^k} &< \epsilon \end{aligned}$$

■