

1. Prove that the subset $\{0\} \cup \{1/n; n \in \mathbb{N}\}$ of $\mathbb{R}_{\ell\ell}$ is both compact and sequentially compact.
2. Prove that the subset $\{0\} \cup \{-1/n; n \in \mathbb{N}\}$ of $\mathbb{R}_{\ell\ell}$ is not limit point compact. (Hence, the subset $[-1, 0]$ of $\mathbb{R}_{\ell\ell}$ is also not limit point compact.)