Math 131
Homework 5

Read section 3.4 of Rosenlicht.

Rosenlicht page 63-64, problems 18 and 19 and 29.

4. Let E be a metric space and let k be a real number such that $0 < k < 1$. Suppose $\{p_n\}$ is a sequence in E such that for all $n \in \mathbb{N}$, $d(p_n, p_{n+1}) \leqslant k^n$. Prove that the sequence $\{p_n\}$ is Cauchy.