

拓扑习题-21

1. 完整地写下道路提升引理的证明。
2. Munkres 书上第九章的 §53 的 Exercise 1,2,3:

Exercises

1. Let Y have the discrete topology. Show that if $p : X \times Y \rightarrow X$ is projection on the first coordinate, then p is a covering map.
2. Let $p : E \rightarrow B$ be continuous and surjective. Suppose that U is an open set of B that is evenly covered by p . Show that if U is connected, then the partition of $p^{-1}(U)$ into slices is unique.
3. Let $p : E \rightarrow B$ be a covering map; let B be connected. Show that if $p^{-1}(b_0)$ has k elements for some $b_0 \in B$, then $p^{-1}(b)$ has k elements for every $b \in B$. In such a case, E is called a ***k-fold covering*** of B .