

Real Analysis 2, MATH 5220

Homework 10, Munkres Sections 54 and 55

Due Tuesday May 5, 2015 at 3:00

- 54.3.** Let $p : E \rightarrow B$ be a covering map. Let α and β be paths in B with $\alpha(1) = \beta(0)$ (so that $\alpha * \beta$ is defined). Let $\tilde{\alpha}$ and $\tilde{\beta}$ be liftings of α and β , respectively, such that $\tilde{\alpha}(1) = \tilde{\beta}(0)$. Prove that $\tilde{\alpha} * \tilde{\beta}$ is a lifting of $\alpha * \beta$. HINT: Use the definition of $\alpha * \beta$ and “lifting.”
- 55.1.** Prove that if A is a retract of B^2 then every continuous function $g : A \rightarrow A$ has a fixed point.