D. Do Carmo 57/3, 8
Do Carmo 77/1,3,5,7

E. Let M be a connected Riemannian manifold, and let f,g be isometries of M with itself. Show that if there is a point \( p \in M \) with \( f(p) = g(p) \) and \( df_p = dg_p \), then \( f = g \) everywhere on the manifold. [Suggestion: By composing \( f \) with \( g^{-1} \), it suffices to show this statement in the case that \( g = id \). Now try to show that \( U = \{ q \in M \mid f(q) = q \} \) is open and closed. Closedness is easy; for openness, use the exponential map and uniqueness of geodesics.]