

Abstract

We will begin with study of functions on smooth compact Manifolds and its implications on topology. We show that for a general smooth function the critical points are non degenerate (by Sard's theorem) and each critical point has an index which determines how the manifold changing while passing such a point. We will illustrate this phenomenon by explicit examples and indicate a proof of how the manifold is "reconstructed" (up to homotopy) by such a general smooth function.