

Part II
From Brouwer to Nash

The next three chapters focus on the Brouwer Fixed-Point Theorem, beginning with an analysis-based argument that proves the theorem in all finite dimensions. Then we'll use Brouwer's theorem to prove John Nash's Nobel Prize winning result on the existence of "Nash Equilibrium" in game theory. Finally we'll prove Kakutani's set-valued extension of Brouwer's theorem, which will lead us to Nash's celebrated "one-page proof" of his theorem. Throughout, the setting will be finite dimensional, the only background needed being a reasonable exposure to undergraduate-level analysis. Ideas from game theory will be carefully motivated.