

In this thesis we explore a theorem from real analysis and geometry called Anderson's theorem. It concerns an integral inequality for symmetric quasi-concave functions, where the integration is done over a symmetric convex set. A thorough proof of Anderson's theorem is given. In addition, we investigate cases in which equality or strict inequality occurs. While studying this topic, we come across some problems in published papers and we try to clarify them. Furthermore, we explore possible extensions of the theorem. In particular, results involving group invariance and theory of s -concave functions are mentioned. As outlined in the final part of the thesis, Anderson's theorem is a useful and widely used tool in multivariate statistics.