1057-31-145   **Albert Baernstein II*** (`al@math.wustl.edu`) and **A. Yu. Solynin**. *Monotonicity and comparison results for conformal invariants.*

Suppose that Ω is an n-fold symmetric domain in the plane which satisfies a differential inequality $\Delta u \geq \gamma(u) + f$ in Ω. Assume also that u is constant outside Ω. We prove that if γ and f satisfy certain conditions, among them that f be n-fold symmetric, then u is n-fold symmetric. We prove also that if u is desymmetrized in a certain way, then the function thus obtained is majorized by a function v which satisfies $\Delta v \leq \gamma(v) + f_1$, where f_1 is a corresponding desymmetrization of f. This permits us to solve some extremal problems involving Poincare metrics, harmonic measures and capacities. (Received January 19, 2010)