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Albert Baernstein II* (al@math.wustl.edu) and **A. Yu. Solynin.** *Monotonicity and comparison results for conformal invariants.* Preliminary report.

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 satisfies 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 . These results permit us to solve some extremal problems involving Poincaré metrics, harmonic measure and capacities. (Received August 21, 2009)