1046-34-2039 **Cesar Martinez Garza*** (cxm58@psu.edu), Penn State Berks, Tulpehocken Road, Reading, PA 19610. *Newton-like Methods for Convex-Concave Functions via the Method of Generalized Quasilinearization.* Preliminary report.

In this paper the Method of Generalized Quasilinearization is used to obtain Newton-like comparative schemes to solve the equation $F(x) = 0$, where $F(x) \in C[\Omega, \mathbb{R}]$, $\Omega = [\alpha_0, \beta_0]$. Here, $F(x)$ admits the decomposition $F(x) = f(x) + g(x)$, where $f(x)$ and $g(x)$ are convex and concave functions in Ω, respectively. We explore the case where $f(x)$ and $g(x)$ are not naturally convex and concave, but are forced by adding the functions $\Phi(x)$ and $\Psi(x)$ where $\Phi_{xx}(x) > 0$ and $\Psi_{xx}(x) < 0$, such that $f_{xx}(x) + \Phi_{xx}(x) \geq 0$ and $g_{xx}(x) + \Psi_{xx}(x) \leq 0$ in Ω. We show the existence of monotone sequences that converge quadratically to the isolated root r of $F(x) = 0$ in Ω. (Received September 16, 2008)