

On Solutions of Quasilinear Dynamic Equations

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We consider a quasilinear dynamic equation reducing to a half-linear equation, an Emden-Fowler equation or a Sturm-Liouville equation under some conditions. Any nontrivial solution of the quasilinear equation is eventually monotone. In other words, it can be either positive decreasing (negative increasing) or positive increasing (negative decreasing). First of all, we investigate the asymptotic behavior of all positive decreasing solutions as well as solutions approaching zero. In the last section, we consider the asymptotic behavior of all positive increasing solutions of quasilinear dynamic equations. Solutions are classified according to certain integral conditions. The approach is based on the Tychonov fixed point theorem.