

OSCILLATION CRITERIA FOR SECOND ORDER NEUTRAL DIFFERENTIAL EQUATIONS WITH POSITIVE AND NEGATIVE COEFFICIENTS

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Abstract. In this paper oscillatory and asymptotic behavior of solutions of a class of nonlinear second order neutral differential equations with positive and negative coefficients of the form

$$(r_1(t)(x(t) + p_1(t)x(\tau(t)))')' + r_2(t)(x(t) + p_2(t)x(\sigma(t)))' \\ + p(t)G(x(\alpha(t))) - q(t)H(x(\beta(t))) = 0$$

and

$$(r_1(t)(x(t) + p_1(t)x(\tau(t)))')' + r_2(t)(x(t) + p_2(t)x(\sigma(t)))' \\ + p(t)G(x(\alpha(t))) - q(t)H(x(\beta(t))) = f(t)$$

are studied for $p_1(t), p_2(t) \in C([t_0, \infty), \mathbb{R})$. Moreover, using Banach fixed point theorem, sufficient conditions are obtained for the existence of bounded positive solutions of the forced equation.

Keywords. Oscillatory, asymptotic behaviour, neutral differential equations, positive and negative coefficients.

AMS (MOS) subject classification: 34 C 10, 34 C 15.

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