AN OSCILLATION CRITERION FOR FIRST ORDER LINEAR DELAY DIFFERENTIAL EQUATIONS

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ABSTRACT. A new oscillation criterion is given for the delay differential equation
\[ x'(t) + p(t)x(t - \tau(t)) = 0, \]
where \( p, \tau \in C([0, \infty), [0, \infty)) \) and the function \( T \) defined by
\[ T(t) = t - \tau(t), \quad t \geq 0 \]
is increasing and such that \( \lim_{t \to \infty} T(t) = \infty \). This criterion concerns the case where
\[ \liminf_{t \to \infty} \int_{T(t)}^{t} p(s) \, ds \leq \frac{1}{2}. \]