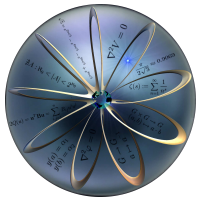

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Gronwall's lemma

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If, for $t_0 \leq t \leq t_1$, $\phi(t) \geq 0$ and $\psi(t) \geq 0$ are continuous functions such that the inequality

$$\phi(t) \leq K + L \int_{t_0}^{t} \psi(s)\phi(s)ds$$

holds on $t_0 \leq t \leq t_1$, with K and L positive constants, then

$$\phi(t) \leq K \exp\left(L \int_{t_0}^{t} \psi(s)ds \right)$$

on $t_0 \leq t \leq t_1$.