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Partial Differential Equations 2 – Fall 2019
Exercise Sheet 6 — Due Date: Oct 29

Work in groups, write in LaTeX!

Problem 12 Prove Grönwall's inequality in the following version:

Let η be *nonnegative*, absolutely continuous function on $[0,T]$ such that for almost every t,

$$\eta'(t) \leq \phi(t)\eta(t) + \psi(t),$$

for $\phi(t)$ and $\psi(t)$ nonnegative, integrable functions on $[0,T]$. Then

$$\eta(t) \leq \exp\left(\int_0^t \phi(s)\,ds\right)\left(\eta(0) + \int_0^t \psi(s)\,ds\right).$$
