

EXTRA CREDIT PROBLEM 4

DEADLINE: FRIDAY, OCTOBER 9 AT 5PM

Problem. Suppose $f(t)$ is a function defined on some interval $[a, b]$ whose derivative is continuous on the same interval. Use integration by parts to evaluate the following limit:

$$\lim_{\lambda \rightarrow \infty} \int_a^b f(t) \sin(\lambda t) dt$$