Eng T 502 · Advanced Applied Engineering Mathematics I

Final Exam (Part I)

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Name: _____ Section: 1

1. Let $T \in \mathbb{R}$, $T > 0$. Find the Fourier transform F of the finite wave train

$$f(t) := \begin{cases} 0 & |t| > T \\ \sin \omega_0 t & |t| < T \end{cases}$$

and plot it. Investigate: How does F change as $T \to \infty$? Can the frequency ω_0 be estimated by studying F if T is large?