

Homework #2: Problem 7.

The waveform $g(t) = t^3 e^{-bt} \cos(2\pi ft)$ is often used as a representation for a pulsed output waveform in simulations of ultrasound imaging systems.

a) Plot $g(t)$ vs. t for $f = 100\text{Hz}$ and $b = 3.8333$. Select a time interval beginning at $t = 0$ that is large enough to contain at least 3 to 5 additional shifted pulses on the time axis.

b) On the same graph, plot $g(t - x/c)$ vs. t when $x = 3$ and $c = 50\text{m/s}$. Hint: only use values of $t - x/c$ that are greater than zero, and make sure you plot with respect to the variable t [i.e., the corresponding matlab command will look something like `plot(t, g(t - x/c))`].

Turn in your matlab code and the plots for a) and b).