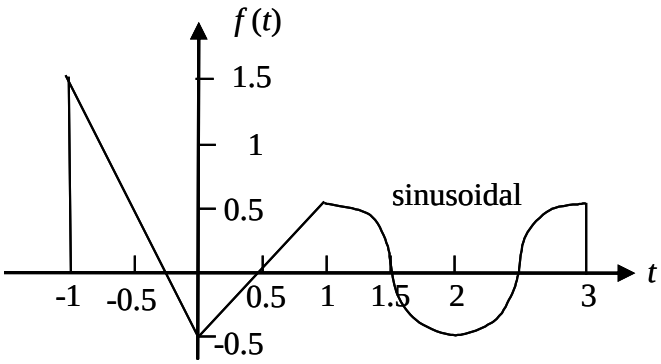
ECE 3337 Summer-3, Hebert, Homework 3 Due Thurs 6/16

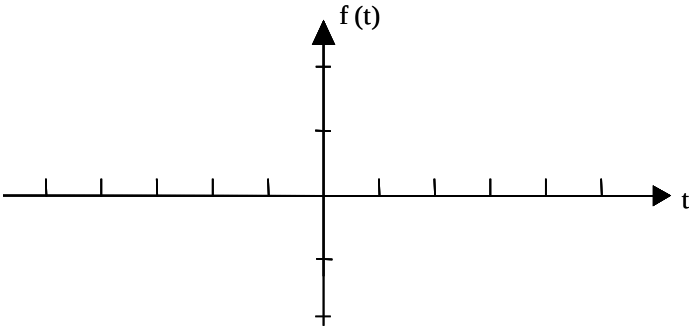
Problem 1.

Evaluate the integral $\int_{-\infty}^{+\infty} e^{-3(t-2)}\delta(t-4)\,dt$ (use the property of the Dirac delta function).

Problem 2. Write down a functional description of $f(t)$ using step functions .



Problem 3. Plot $f(t) = 2\sin(0.5\pi t - 0.5\pi)\left[u(t-2) - u(t-4)\right]$. Label both axes of the plot.



Problem 4. Determine whether-or-not the functions $f(t)$ below are periodic. If $f(t)$ is periodic, find the period. Hint: first apply a trig identity.

(a) $f(t) = 3\sin(5\pi t)\cos(2\pi t)$

(b) $f(t) = 3\sin(3t)\cos(4\pi t)$