

1. Determine whether the following signals are energy or power signals. Compute the energy or the power.
 - (a) $x(t) = \cos(2t)u(t)$, where $u(t)$ is the step function defined on page 87 in (1.20)
 - (b) $x(t) = 1.5 \cos(5t) \cos(15t)$
 - (c) $x(t) = \begin{cases} 2 \cos(\pi t) & \text{if } -\frac{1}{2} \leq t \leq \frac{1}{2} \\ 0 & \text{otherwise} \end{cases}$
 - (d) $x(t) = t \exp(-|t|)$
 - (e) The signal in Problem 1.1-9 on page 141.
2. For the signal illustrated in Figure P1.2-2 on page 141 sketch each of:
 - (a) $x(t + 4)$
 - (b) $x(2t - 4)$
 - (c) $\frac{1}{2}x(0.5t - 2) + 1$
 - (d) $3x(2 + t)$
3. Do problem 1.3-6 on page 143.
4. An exponentially damped sinusoidal signal is defined by $x(t) = 10 \cos(2000\pi t - \pi/6) \exp(-at)$, where the exponential parameter a is variable, taking on the set of values $a = 0, 200, 600, 1000$. Using MATLAB, investigate the effect of varying a in the signal $x(t)$ for $-1 \leq t \leq 3$ milliseconds. Please turn in your m-file, and your plots of the signal for all four different values of a .