

## **PROBLEM:**

For each of the following problems, SIMPLIFY your answer as much as possible.

- (a) Define  $x(t) = 2\cos(20\pi t + \pi/4) + 3\cos(20\pi (t 0.025))$ . Use phasor addition to express x(t) in the form  $x(t) = A\cos(\omega_0 t + \phi)$  by finding numerical values for  $\omega_0$ , A, and  $\phi$ .
- (b) Evaluate the following expression,  $|(3-2j)e^{j(0.2t)}|^2 =$

(c) Evaluate the following integral, 
$$\int_{t-1}^{t+1} \delta(\tau - 2) d\tau$$

(d) Evaluate the following integral, 
$$\int_0^{1/2} \sin(2\pi t) e^{-j4\pi t} dt$$

McClellan, Schafer and Yoder, Signal Processing First, ISBN 0-13-065562-7. Prentice Hall, Upper Saddle River, NJ 07458. © 2003 Pearson Education, Inc.