Problem 1.1: Determine the phasor $F$ of the following sinusoidal functions $f(t)$:

(a) $f(t) = 2 \cos(2t + (\pi/3))$

(b) $f(t) = A \sin(\omega t)$

(c) $f(t) = -5 \sin(\pi t)$.

Problem 1.2: Find the cosine function $f(t)$ with the frequency $\omega = 2 \text{ rad/sec}$ corresponding to the following phasors:

(a) $F = 2j$

(b) $F = 3e^{-j\pi/6}$

(c) $F = 2j + 3e^{-j\pi/6}$.

Problem 1.3: Consider the following circuit:

Determine the steady-state current $i(t)$ using phasor current division.

Problem 1.4: In the following circuit determine the node-voltage phasors $V_1$, $V_2$, and $V_3$ and express them in polar form. Assume a sinusoidal frequency of $\omega = 2$. 
**Problem 1.5:** In the circuit shown in the previous problem determine the loop-current phasors $I_1$, $I_2$, and $I_3$ and express them in polar form.

**Problem 1.6:** Use the phasor method to determine $v_1(t)$ in the following circuit.

**Problem 1.7:** Determine the impedance $Z_L$ of a load that is matched to the following network at terminals $a$ and $b$, and determine the net power absorbed by the matched load: