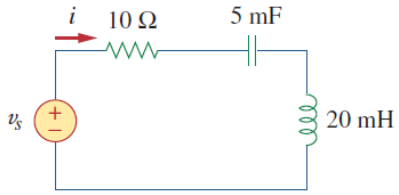
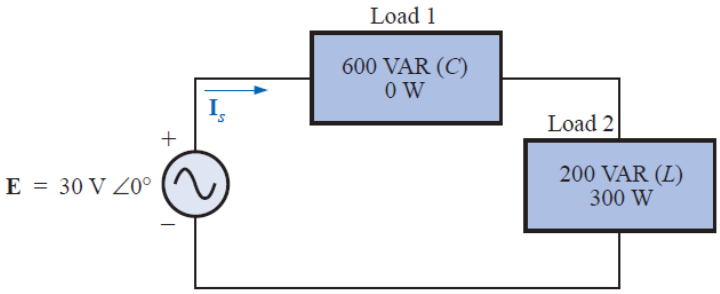
1. Sketch waveform for $v_1(t)+v_2(t)$
   $v_1(t) = 10 \sin(\omega t+20^o)$ Volts
   $v_2(t)=5 \sin(\omega t - 45^o)$Volts

2. A choke coil having resistor R and inductor L are connected in series with resistance across a 230V, 50Hz AC supply. The circuit draws a current of 5A and lags behind the voltage by 30˚. The voltage drop across the resistor is 120V. Calculate phase angle of a choke coil.

3. Find current i in the circuit of Fig. shown below, when $v_s(t) = 50 \cos 200t$ V.



4. For the system of Fig. shown below:
a. Find the total number of watts, volt-amperes reactive, and volt-amperes, and *Fp*.
b. Find the current **I***s*.
c. Draw the power triangle.



Hint:

$$P_T = 0 + 300 \text{ W} = 300 \text{ W}$$
$$Q_T = 600 \text{ VAR}(C) + 200(L) = 400 \text{ VAR}(C)$$