11.15 In the circuit of Fig. 11.46, find the value of $\mathbf{Z}_L$ that will absorb the maximum power and the value of the maximum power.

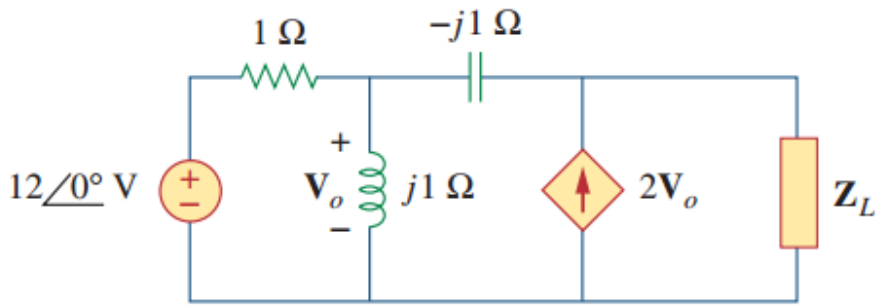

Figure 11.46
For Prob. 11.15.

11.23 Using Fig. 11.54, design a problem to help other students better understand how to find the rms value of a waveshape.

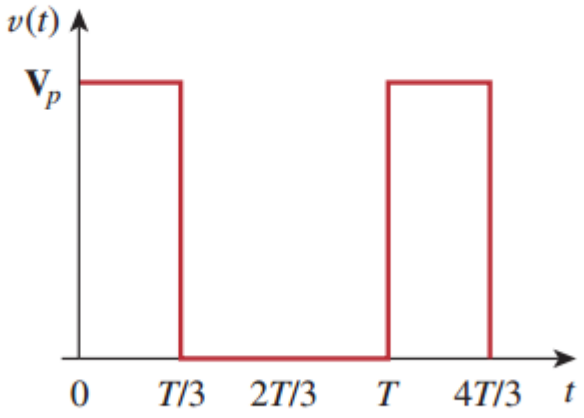

Figure 11.54
For Prob. 11.23.

11.51 For the entire circuit in Fig. 11.70, calculate:

(a) the power factor

(b) the average power delivered by the source

(c) the reactive power

(d) the apparent power

(e) the complex power

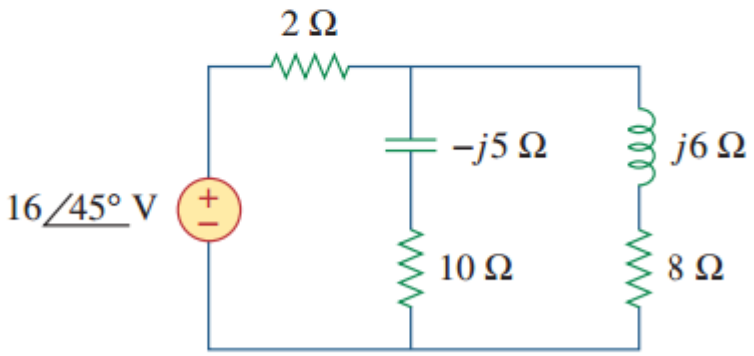

Figure 11.70
For Prob. 11.51.

11.61 Given the circuit in Fig. 11.80, find $\mathbf{I}_o$ and the overall complex power supplied.

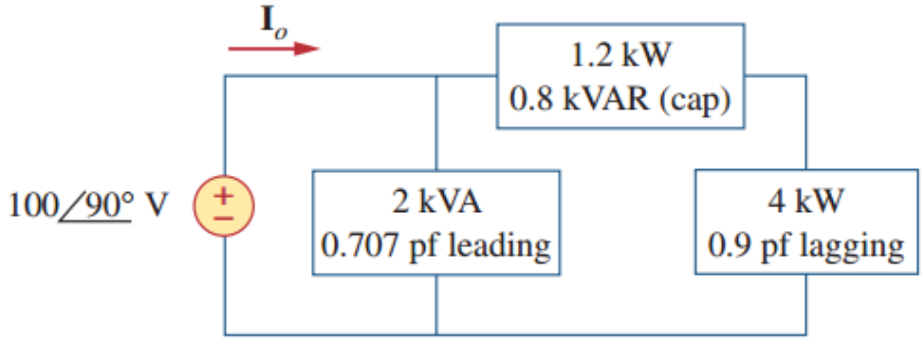

Figure 11.80
For Prob. 11.61.

11.69 Refer to the circuit shown in Fig. 11.88.

(a) What is the power factor?

(b) What is the average power dissipated?

(c) What is the value of the capacitance that will give a unity power factor when connected to the load?

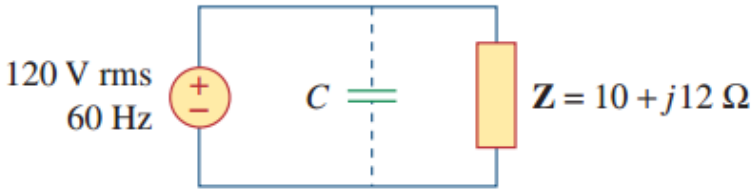

Figure 11.88
For Prob. 11.69.

12.7 Obtain the line currents in the three-phase circuit of Fig. 12.42 on the next page.

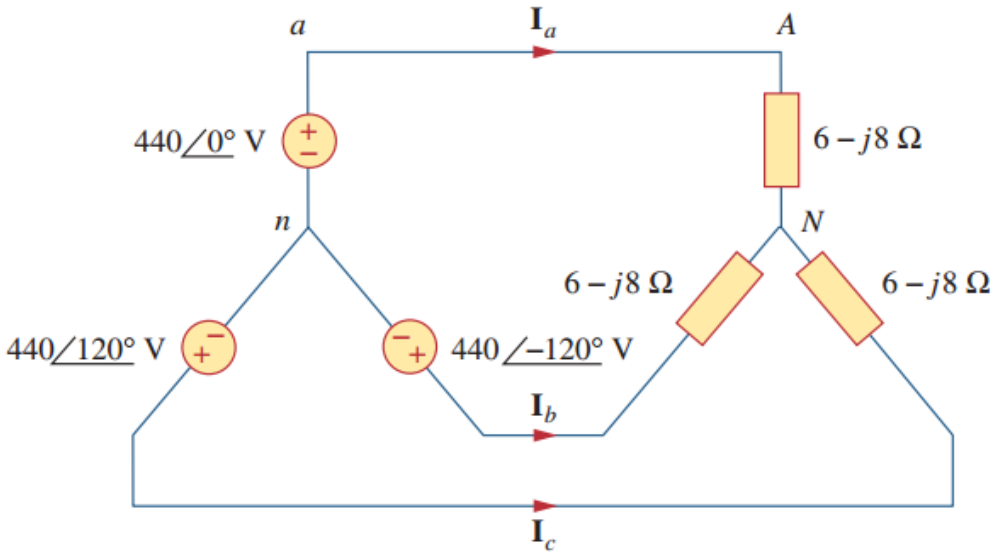

Figure 12.42
For Prob. 12.7.

12.11 In the Y-Δ system shown in Fig. 12.44, the source is a positive sequence with $\mathbf{V}_{an} = 240\angle 0°$ V and phase impedance $\mathbf{Z}_p = 2 - j3\ \Omega$. Calculate the line voltage $\mathbf{V}_L$ and the line current $\mathbf{I}_L$.

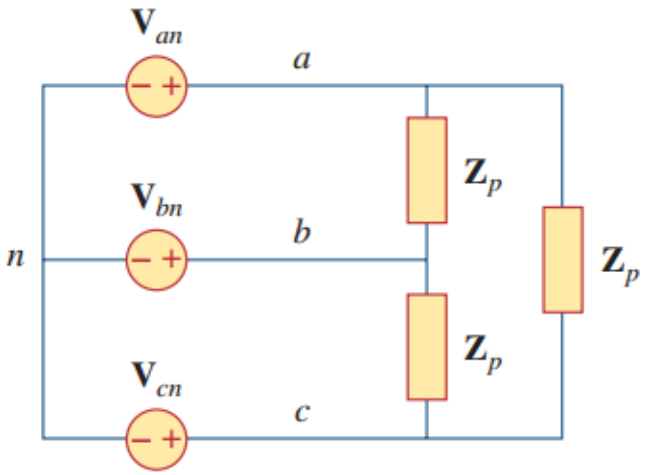

Figure 12.44
For Prob. 12.11.

12.33 A three-phase source delivers 4.8 kVA to a wye-connected load with a phase voltage of 208 V and a power factor of 0.9 lagging. Calculate the source line current and the source line voltage.

12.59 The source in Fig. 12.65 is balanced and exhibits a positive phase sequence. If $f = 60$ Hz, use *PSpice or MultiSim* to find $\mathbf{V}_{AN}$, $\mathbf{V}_{BN}$, and $\mathbf{V}_{CN}$.

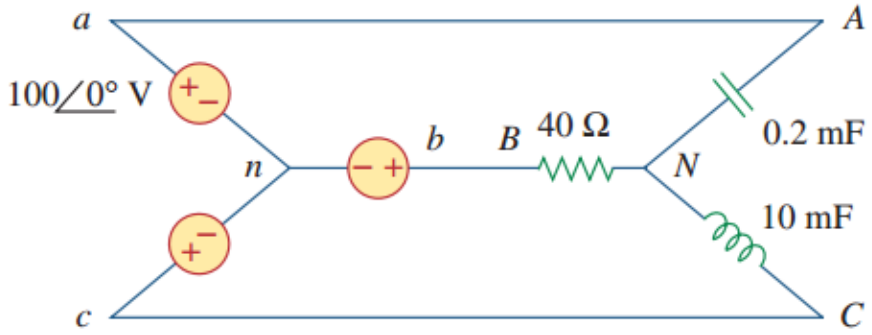

Figure 12.65
For Prob. 12.59.

12.71 In Fig. 12.73, two wattmeters are properly connected to the unbalanced load supplied by a balanced source such that $\mathbf{V}_{ab} = 208\angle 0°$ V with positive phase sequence.

(a) Determine the reading of each wattmeter.

(b) Calculate the total apparent power absorbed by the load.

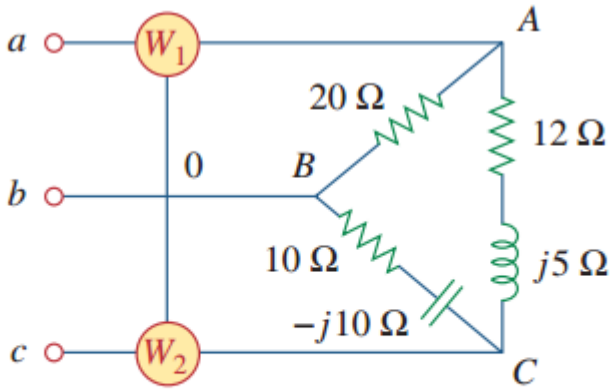

Figure 12.73
For Prob. 12.71.