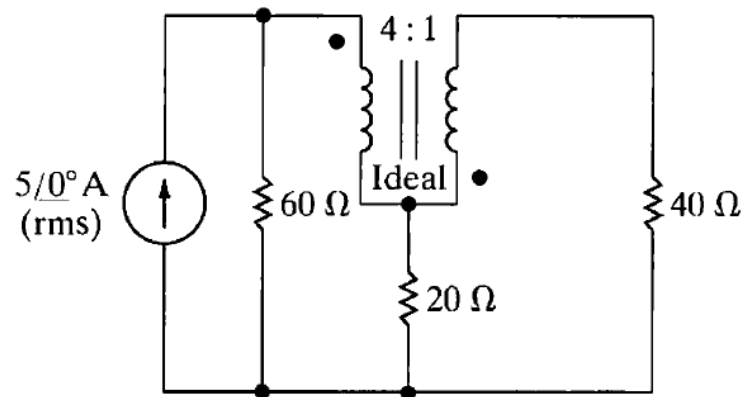# Transformer Problems

10.39 a) Find the average power delivered by the sinu-
soidal current source in the circuit of Fig. P10.39.

b) Find the average power delivered to the 20 Ω
resistor.

Figure P10.39

10.44 For the frequency-domain circuit in Fig. P10.44, calculate:

a) the rms magnitude of V_o.

b) the average power dissipated in the 70 Ω resistor.

c) the percentage of the average power generated by the ideal voltage source that is delivered to the 70 Ω load resistor.
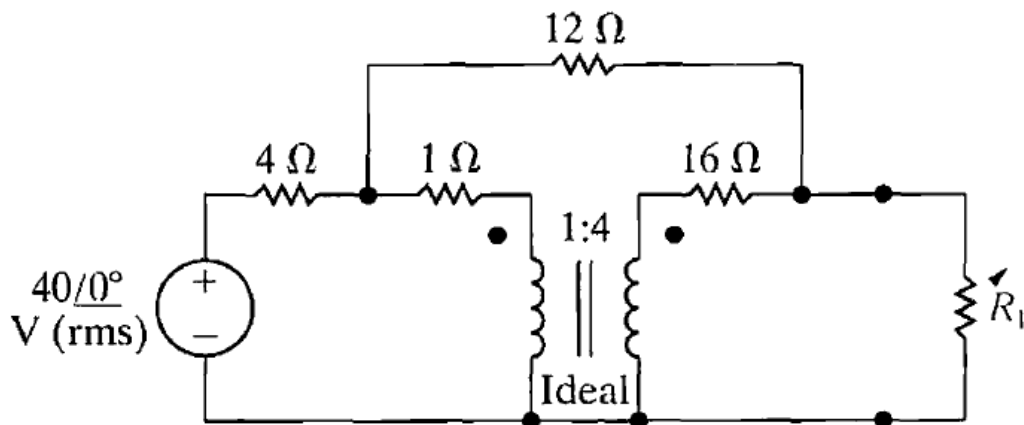
Figure P10.44
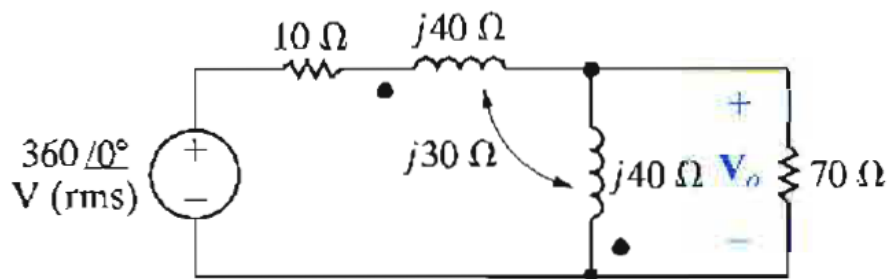
10.45 The 70 Ω resistor in the circuit in Fig. P10.44 is replaced with a variable impedance Z_o. Assume Z_o is adjusted for maximum average power transfer to Z_o.

a) What is the maximum average power that can be delivered to Z_o?

b) What is the average power developed by the ideal voltage source when maximum average power is delivered to Z_o?

10.62 The variable load resistor R_L in the circuit shown in

Fig. P10.62 is adjusted for maximum average power transfer to R_L.

a) Find the maximum average power.

b) What percentage of the average power developed by the ideal voltage source is delivered to R_L when R_L is absorbing maximum average power?

c) Test your solution by showing that the power developed by the ideal voltage source equals the power dissipated in the circuit.

10.64 Find the average power delivered to the 10 Ω resistor in the circuit of Fig. P10.64.

Figure P10.64