

Chapter 9, Problem 90.

An industrial coil is modeled as a series combination of an inductance L and resistance R , as shown in Fig. 9.90. Since an ac voltmeter measures only the magnitude of a sinusoid, the following measurements are taken at 60 Hz when the circuit operates in the steady state:

$$|V_s| = 145\text{V}, \quad |V_1| = 50\text{V}, \quad |V_o| = 110\text{V}$$

Use these measurements to determine the values of L and R .

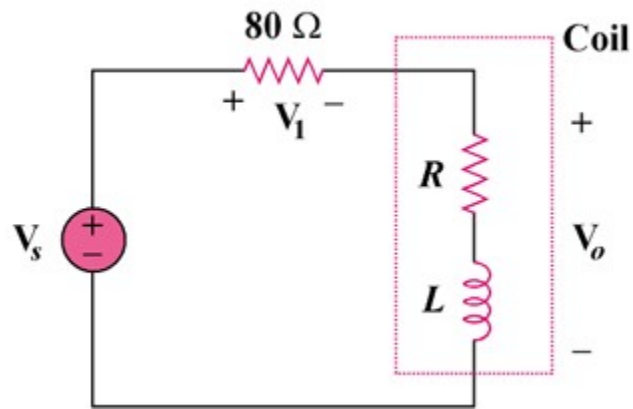


Figure 9.90
For Prob. 9.90.