VE215
Assignment #8
Fall 2016

Problem 1

In the circuit of Fig. 1, determine the average power absorbed by the 40Ω resistor.
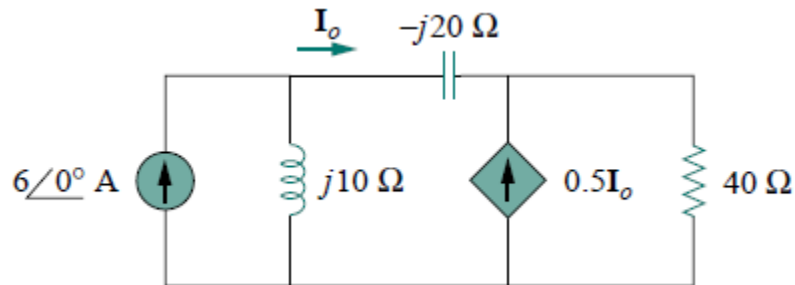

Figure 1

Problem 2

Find the value of $\mathbf{Z}_L$ in the circuit of Fig. 2 for maximum power transfer.

Figure 2

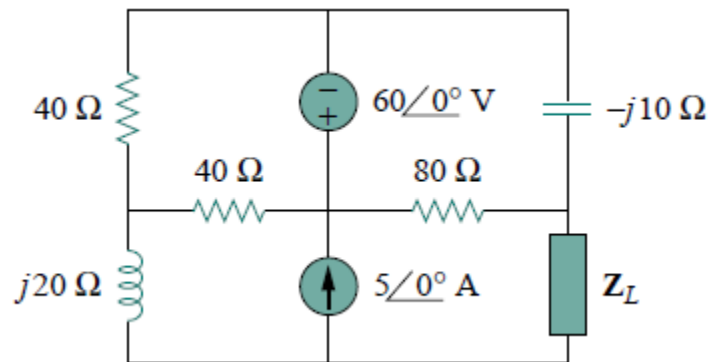## Problem 3

Find the rms value of the voltage waveform of Fig.3 as well as the average power absorbed by a 2Ω resistor when the voltage is applied across the resistor.
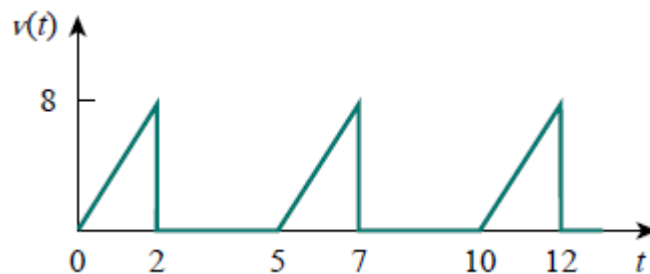

Figure 3

Problem 4

For the entire circuit in Fig. 4, calculate:

(a) the power factor   (b) the average power delivered by the source

(c) the reactive power   (d) the apparent power
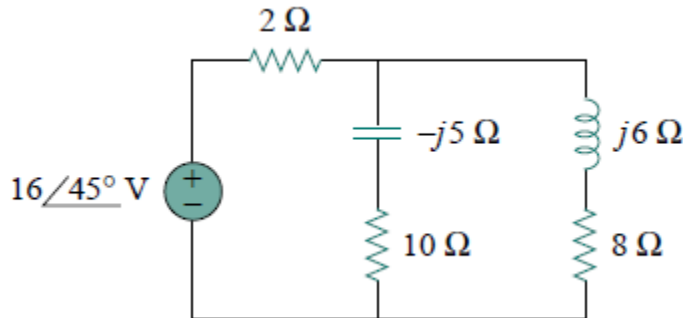
(e) the complex power

Figure 4

Problem 5

Calculate the complex power delivered to each resistor and capacitor in the op amp circuit of Fig.5. Let $vs = 2 \cos 103t$ V.
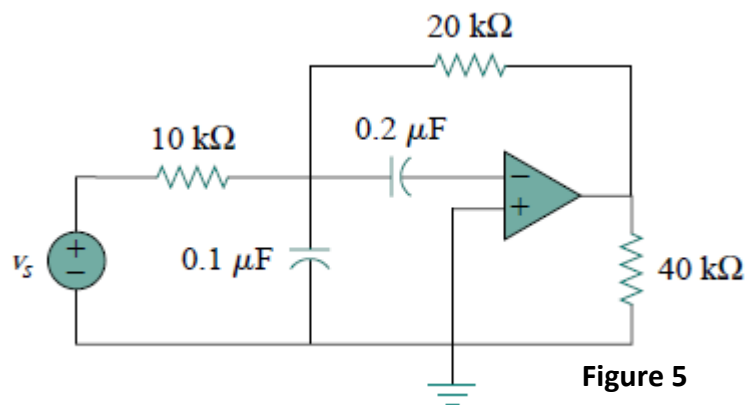

Figure 5

Problem 6

As shown in Fig. 6, a 550-V feeder line supplies an industrial plant consisting of a motor drawing 60 kW at 0.75 pf (inductive), a capacitor with a rating of 20 kVAR, and lighting drawing 20 kW.

   (a) Calculate the total reactive power and apparent power absorbed by the plant.

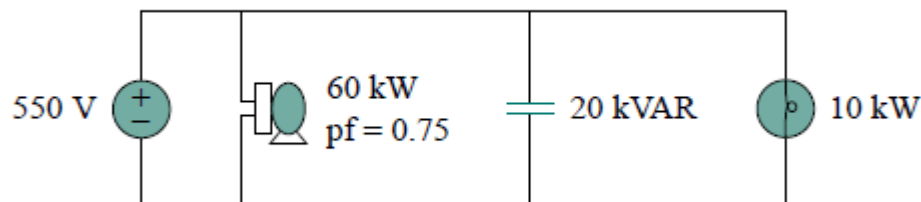   (b) Determine the overall pf.   (c) Find the current in the feeder line.

Figure 6