

Dr. Mustak E. Yalcin

Circuit and System Analysis

Exercise for Week-4

1. A load is connected in parallel across a $120V$ (rms) voltage source. The load is delivering a reactive power of 1800VAR at leading power factor $pf = \frac{\sqrt{3}}{2}$. The frequency of the voltage source is 80rad/sn . (a) Calculate the admittance of the load. (b) compute the value of element that would correct the power factor to 1 if placed in parallel with the load.
2. The capacitor has been added to the load in the circuit shown in Figure 1 to maximize the power absorbed by the 4000Ω resistor. What value of capacitance should be used to accomplish that objective?
3. The source of Figure 2 delivers 50 VA with a power factor of 0.8 lagging. Find the unknown impedance Z .

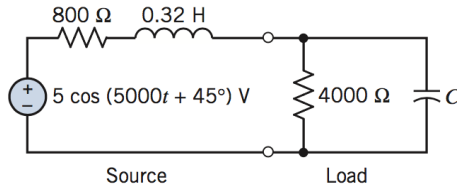


Figure 1

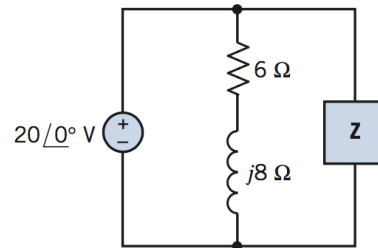


Figure 2