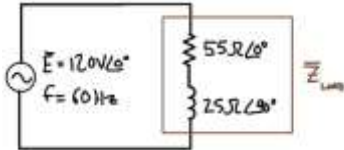


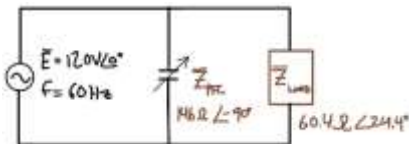
Power Factor Correction Examples (47:33)

Given this circuit in its present configuration determine the voltage across the load, the current drawn by the load, the apparent, real, and reactive power experienced by the load, and the power factor.

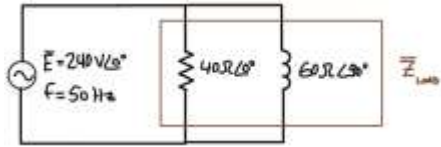


Determine the impedance and component level value of the element that will power factor correct the above circuit.

Given this power factor corrected circuit determine the voltage across the load, the current drawn by the load, the apparent, real, and reactive power experienced by the load, the voltage across the power factor correcting capacitor, the current drawn by the power factor correcting capacitor, the apparent, real, and reactive power experienced by the power factor correcting capacitor, the source current, and the total apparent, real, and reactive power.

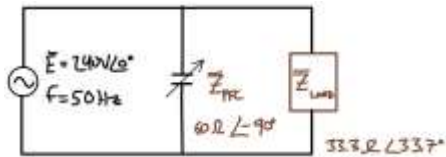


Given this circuit in its present configuration determine the voltage across the load, the current drawn by the load, the apparent, real, and reactive power experienced by the load, and the power factor.



Determine the impedance and component level value of the element that will power factor correct the above circuit.

Given this power factor corrected circuit determine the voltage across the load, the current drawn by the load, the apparent, real, and reactive power experienced by the load, the voltage across the power factor correcting capacitor, the current drawn by the power factor correcting capacitor, the apparent, real, and reactive power experienced by the power factor correcting capacitor, the source current, and the total apparent, real, and reactive power.



Determine voltage, current, apparent, real, and reactive power for each electrical load in the present configuration as well as source current for the following 3 scenarios.

Scenario 1: only motor A is energized.

Scenario 2: only motor B is energized.

Scenario 3: both motor A and motor B are energized.



Determine the impedance and component level values that will power factor correct the above system in 3 scenarios (A only, B only, A and B). Determine the electrical properties of the power factor corrected system.

Discuss the implications of switching in the wrong power factor correcting capacitor for the above system.

Discuss how a single variable power factor correcting capacitor can power factor correct the above system for different scenarios.