Basic Electrical Engineering : Assignment No.2

1. In the circuit shown in Fig.1:
   (a) Evaluate the complex power absorbed by the impedances Z1 and Z2.
   (b) Prove that Kirchhoff's voltage law is valid.

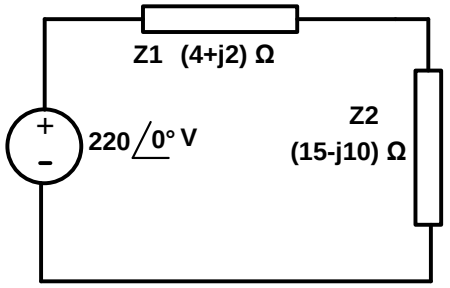

Fig.1

2. In the circuit shown in Fig.2, the 60 Ω resistor consumes an active power of 240W. Find the voltage 'V' of the AC source and the complex power of each branch of the circuit. What is the complex power delivered by the source? Assume that the current through the 60 Ω resistor has no phase shift.

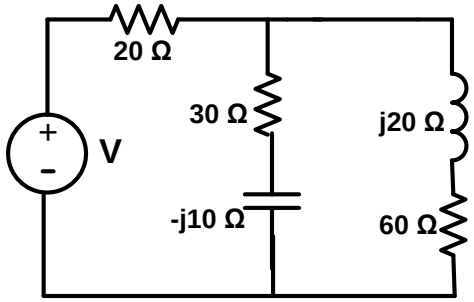

Fig.2

3. In the circuit shown in Fig.3:
   (a) Determine the power factor as seen by the source.
   (b) Prove that the complex power supplied by the source is equal to the total complex power absorbed by the circuit.

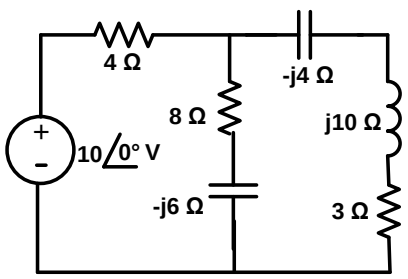

Fig.3