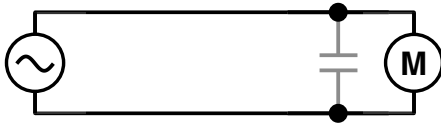


1. A 3-phase, 15 hp, 460 V induction motor operating at $1/3$ load and 1160 rpm has an efficiency of 75 % and a power factor of 77 %.

Sketch the circuit and determine the active power, apparent power, reactive power, power factor angle, and line current, then draw the power triangle.

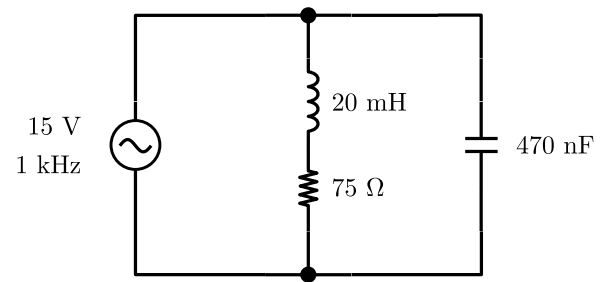
2. A 440 V, 60 Hz, single phase motor draws 50 kVA at 0.7 pf. Determine the kVAR of a capacitor that will correct the power factor to 0.9.



Electrical Machines
Power Factor Problems

Mr. Haynes

3. For the circuit shown, calculate the the current through each branch, the current drawn from the power supply, the circuit pf, and the power dissipated.



4. The stator winding of an a.c. motor, which has a resistance of $20\ \Omega$ and an inductance of $0.25\ \text{H}$, is connected to a $240\ \text{V}$, $60\ \text{Hz}$ supply.
 - a) Calculate the current drawn from the supply, and the power factor.
 - b) Two power factor correction capacitors, each of $16\ \mu\text{F}$, are then connected in parallel across the stator winding. Calculate the current now drawn from the supply, and the power factor.