HomeWork 2

1- The voltage across a 5Ω resistor is as indicated. Find the sinusoidal expression for the current. In addition, sketch the I & v sinusoidal waveforms on the same axis.

a. 150 sin 200t **b. 30 sin (377t + 20°)**

c. 40 cos(wt + 10°) **d. -80 sin(wt + 40°)**

2- A circuit dissipates 100 W (average power) at 150 V (effecctive input voltage) and 2 A (effective input current). What is the power factor ? Repeat if the power is 0 W ; 300 W.

3- Determine the inductive reactance (in ohms) of a 2 H coil

for

a. dc

and for the following frequencies:

b. 10 Hz **c. 60 Hz**

d. 2000 Hz **e. 100,000 Hz**

4- For the system in Fig. below , find the sinusoidal expression

for the unknown voltage $\boldsymbol{V_a}$ if :

$\boldsymbol{e_{in}}$ **= 60 sin(377t + 20°)**

$\boldsymbol{V_b}$ **= 20 sin(377t - 20°)**