**Physics 202 … Practice Problems**

**AC Circuits … Part A**

1. What is the inductive reactance of a 35.0 mH inductor in an AC circuit that has an angular frequency of 300 rad/s?
2. At what angular frequency will a 0.865 H inductor have an inductive reactance of 45.7 ?
3. An inductor has an inductive reactance of 9.55  at an angular frequency of 230 rad/s. What is the inductance?

1. What is the capacitive reactance of a 480 F capacitor in an AC circuit that has an angular frequency of 185 rad/s?
2. At what angular frequency will a 35.0 mF capacitor have a capacitive reactance of 4.66 ?
3. A capacitor has a capacitive reactance of 15.3  at an angular frequency of 750 rad/s. What is the capacitance?

1. An AC circuit has a peak voltage of 45.9 V and an impedance of 382 . What is the peak current through the circuit?
2. An AC circuit has an impedance of 2930  and a peak current of 28.9 mA. What is the peak voltage for the circuit?
3. An AC circuit has a peak voltage of 313 V and a peak current of 89.3 mA. What is the impedance of the circuit?

1. An AC circuit has a RMS voltage of 32.5 V and an impedance of 2130 . What is the RMS current through the circuit?
2. An AC circuit has an impedance of 689  and a RMS current of 9.55 mA. What is the RMS voltage for the circuit?
3. An AC circuit has a RMS voltage of 124 V and a RMS current of 32.2 mA. What is the impedance of the circuit?

1. An AC circuit has a peak voltage of 12.8 V and an impedance of 125 . What is the RMS current through the circuit?
2. An AC circuit has an impedance of 5640  and a peak current of 123 mA. What is the RMS voltage for the circuit?
3. An AC circuit has a peak voltage of 89.5 V and a RMS current of 65.3 mA. What is the impedance of the circuit?

1. An AC circuit has a resistance of 45.0 , an inductive reactance of 23.7 , and a capacitive reactance of 79.3 . What is the impedance of the circuit?
2. An AC circuit has a resistance of 48.9 , an inductive reactance of 21.7 , and an impedance of 76.7 . What is the capacitive reactance of the circuit?
3. An AC circuit has an impedance of 53.0 , an inductive reactance of 46.70 , and a capacitive reactance of 19.30 . What is the resistance of the circuit?

1. An AC circuit has a resistance of 45.0 , an inductive reactance of 23.7 , and a capacitive reactance of 79.3 . (a) What is the phase angle between the voltage and the current? (b) Does the voltage lead or lag the current?
2. An AC circuit has a resistance of 48.9 , an inductive reactance of 21.7 , and an impedance of 76.7 . (a) What is the phase angle between the voltage and the current? (b) Does the voltage lead or lag the current?
3. An AC circuit has an impedance of 53.0 , an inductive reactance of 46.70 , and a capacitive reactance of 19.30 . (a) What is the phase angle between the voltage and the current?

(b) Does the voltage lead or lag the current?

1. An AC circuit has a resistance of 154  and an impedance of 219 . What is the power factor of this circuit?
2. An AC circuit has a resistance of 132 , an inductive reactance of 62.1 , and a capacitive reactance of 31.8 . What is the power factor of this circuit?
3. An AC circuit has an impedance of 132 , an inductive reactance of 62.1 , and a capacitive reactance of 31.8 . What is the power factor of this circuit?