1. Consider a ciruit with an ideal 60 Hz generator with peak voltage of 120 V connected to a 2 H inductor and a 2Ω resistor connected in series. Find an expression for the current as a function of time.

2. Consider a LC circuit consisting of a ac generator, an inductor with inductance L, and a capacitor with capacitance C connected in series. What is the resonant frequency? If I swap out the inductor with an inductor with 2x the inductance how does the resonant frequency change. What about if I swap out the capacitor with a capacitance 2C?

3. Consider an ac generator with frequency, f, with peak voltage V, connected in series with a resistor (R), an inductor (L) and a capacitor (C). What is the current that flows though the capacitor? What is its rms voltage drop?

4. Same problem as above. What is its average power?