SP 212 Worksheet
Lesson 30: Ch. 31.1, LC Oscillations

1) When coupled to speakers, oscillating LC circuits can be used to produce sound. What inductance $L$ must be used with a $C = 6.0 \mu F$ capacitor to produce an audible frequency of $11 \text{ kHz}$?

2) At a given time in an oscillating LC circuit, 75% of the total energy is stored in the inductor. a) What multiple of the capacitor’s maximum charge is on the capacitor at this time? b) What multiple of the maximum current is moving through the inductor at this time?

3) In an oscillating LC circuit, $L = 3.96 \times 10^{-3} \text{ H}$ and $C = 3.72 \times 10^{-6} \text{ F}$. At $t = 0$ the charge on the capacitor is zero and the current is $2.97 \text{ A}$. a) What is the period $T$ of this oscillator? b) At what time will the energy stored in the capacitor reach its maximum value?