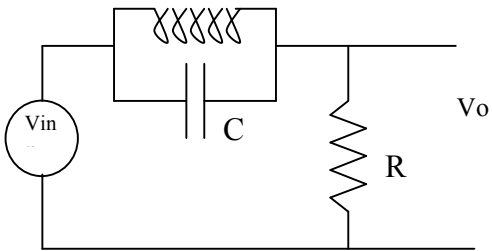## Chapter3 - AC Filter Homework

Answer these on a separate sheet(s). Number your problems. Show your work. Attach the problem sheet to your answers.

1) Derive and sketch and the frequency dependence of the gain for a high pass filter in terms of R and C.

2) Find the gain as a function of frequency for the following circuit. Is there a resonance in the circuit? If so, at what frequency?

3) - 6db in power is what factor of gain?   Show your derivation.

  - 6db in voltage is what factor of gain? Show your derivation.

4) What is the Q value of the circuit in #2 if R =10kΩ, C=1μF, L=1mH.