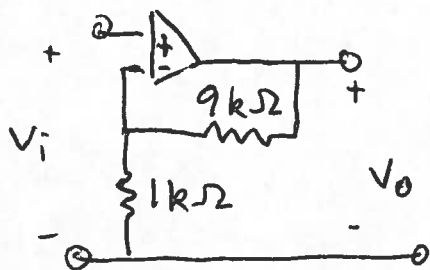


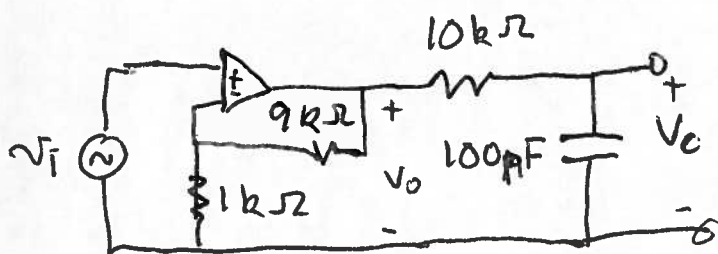
Instructions: Attempt all parts. This is a closed book exam. Calculators can be used.

- a. In the circuit below, if $v_i = 1V$, what is v_o ?



- b. In the circuit below, what is the relation between v_i & v_o as a function of ω ?

Note: $1\mu F = 10^{-6}F$



- c. The circuit in (b) is probed with sinusoidal inputs for $\omega = \{10, 100, 1000, 10^4\}$, measuring both $|v_i(\omega)|$ and $|v_o(\omega)|$ via their peak-peak voltages. Draw the results in a Bode plot. At approximately what frequency does the response begin to significantly drop off?

$$\left(\text{Recall: } \left| \frac{v_o}{v_i} \right|_{dB} = 20 \log_{10} \left(\frac{|v_o|}{|v_i|} \right) \right)$$