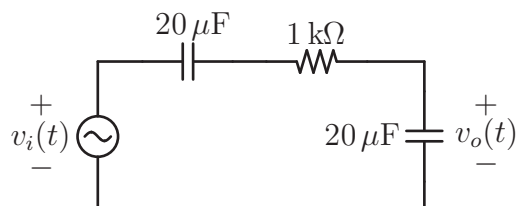
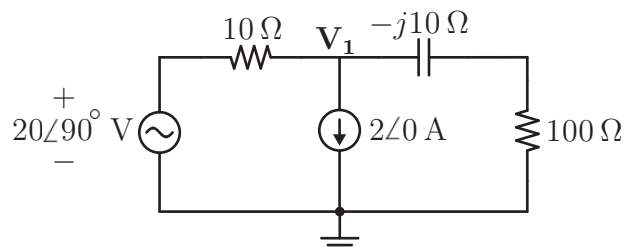


Problem Set 6
 Due Wednesday (5pm), March 21, 2012

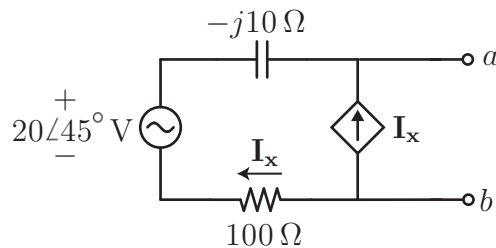
- Find an expression for the complex transfer function $H(\omega) = \frac{V_o}{V_i}$.
 - What are the magnitude $|H(\omega)|$ and phase $\angle H(\omega)$ of the transfer function?
 - Suppose that the input voltage is $v_i(t) = 5 \cos(100t + \frac{\pi}{4})$. What is the phasor representation of this signal in the complex domain?
 - For the given input and the transfer function characteristics, find the output voltage signal, both its phasor representation and its time domain representation.



- Use superposition to solve for \mathbf{V}_1 . Note that the impedances are provided and that sources are given in phasor form.



- Find the Thévenin and Norton equivalents of the circuit at the indicated terminals.



4. Derive the transfer function $H(\omega) = \frac{V_o}{V_i}$ for the following circuit. Does it behave as a low-pass filter or high-pass filter? Explain your answer.

