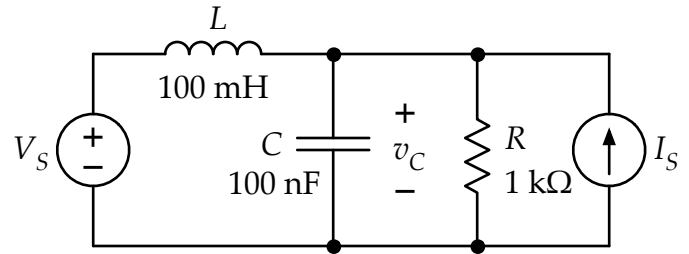


Calculate the complex capacitor voltage for the circuit shown at right. Both sources are sinusoids oscillating at an angular frequency of 10,000 rad/s. The amplitude of the voltage source is 20 V and the amplitude of the current source is 10 mA. The current source has a phase difference of  $+45^\circ$  with respect to the voltage source.



$$V_s(t) = (20 \text{ V})\cos(\omega t) \quad \text{and} \quad I_s(t) = (10 \text{ mA})\cos(\omega t + 45^\circ)$$

$$\tilde{V}_C = \underline{\hspace{15cm}}$$