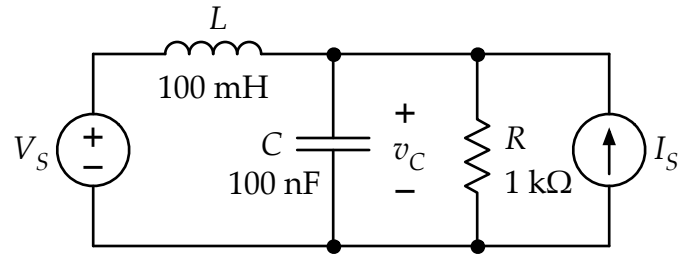


Calculate the complex capacitor voltage for the circuit shown at right. Both sources are sinusoids oscillating at an angular frequency of  $10,000 \text{ rad/s}$ . The amplitude of the voltage source is  $20 \text{ V}$  and the amplitude of the current source is  $10 \text{ mA}$ . The current source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



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

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