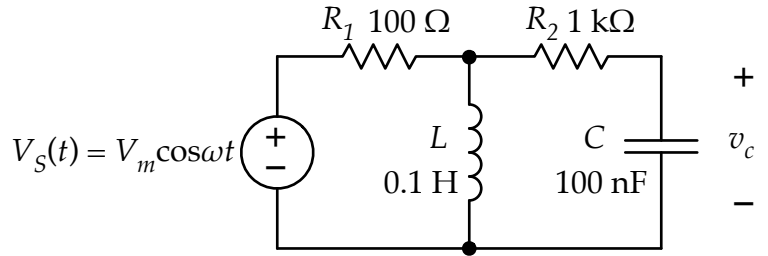


Use AC analysis to find the complex voltage for  $v_C$  shown in the circuit below for frequencies of  $\omega = 500$  rad/s,  $5000$  rad/s, and  $5 \times 10^4$  rad/s. The amplitude of the sine-wave source is  $1$  V. Express your answers in magnitude and phase form.



$\omega = 500$  rad/s:  $\tilde{V}_C =$  \_\_\_\_\_

$\omega = 5 \times 10^3$  rad/s:  $\tilde{V}_C =$  \_\_\_\_\_

$\omega = 5 \times 10^4$  rad/s:  $\tilde{V}_C =$  \_\_\_\_\_