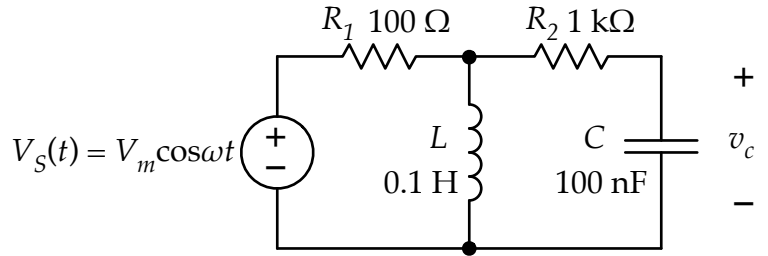


Use AC analysis to find the complex voltage for v_C shown in the circuit below for frequencies of $\omega = 500$ rad/s, 5000 rad/s, and 5×10^4 rad/s. The amplitude of the sine-wave source is 1 V. Express your answers in magnitude and phase form.



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

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

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