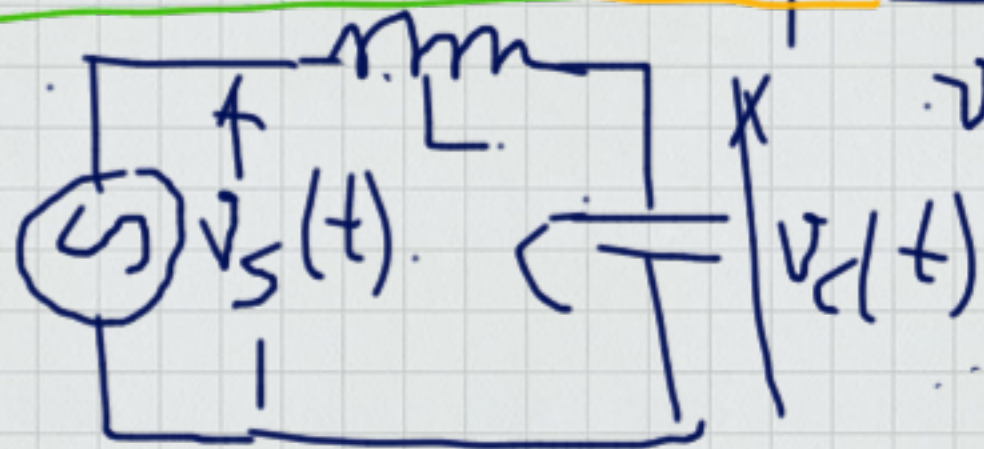


* Analysis Steady State



$$v_s(t) = A \sin \omega t$$

$$v_c(t) = K A \sin(\omega t + \phi)$$

$$K = \text{"Gain"} = |G(j\omega)|$$

$$\phi = \text{"Phase"} = \angle G(j\omega)$$

$$\left. \begin{matrix} K = |G(j\omega)| \\ \phi = \angle G(j\omega) \end{matrix} \right\} \Leftarrow G(s)$$

$$\omega = 2\pi f \left[\frac{\text{rad}}{\text{sec}} \right]$$

$$f = \frac{1}{T}$$

$$\downarrow$$

$$\frac{\omega}{2\pi} = \frac{1}{2\pi T}$$

[Hertz] [sec]

$$K = |G(j\omega)| = \left| \frac{1}{LC(j\omega)^2 + 1} \right| = \left| \frac{1}{1 - \omega^2 LC} \right|$$

$$\phi = \angle G(j\omega) = \angle \frac{1}{LC(j\omega)^2 + 1} \Rightarrow \frac{\omega^2 LC \ll 1}{1} \phi = 0$$

$$f = \frac{1}{2\pi\sqrt{LC}}$$

$$K = \infty \rightarrow \text{RESONANCE}$$

$$f \gg \frac{1}{2\pi\sqrt{LC}} \rightarrow \phi = 180^\circ$$