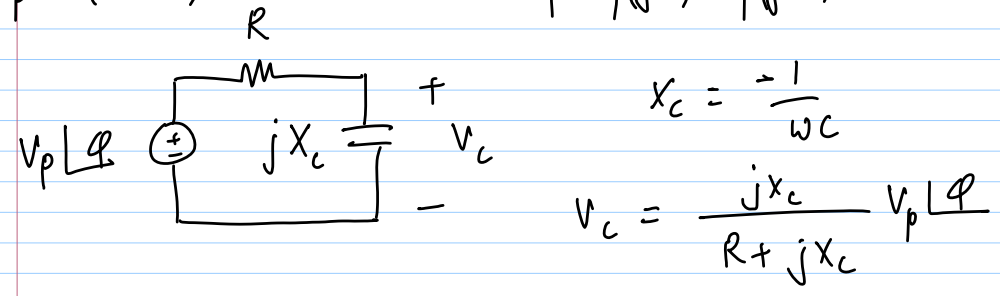
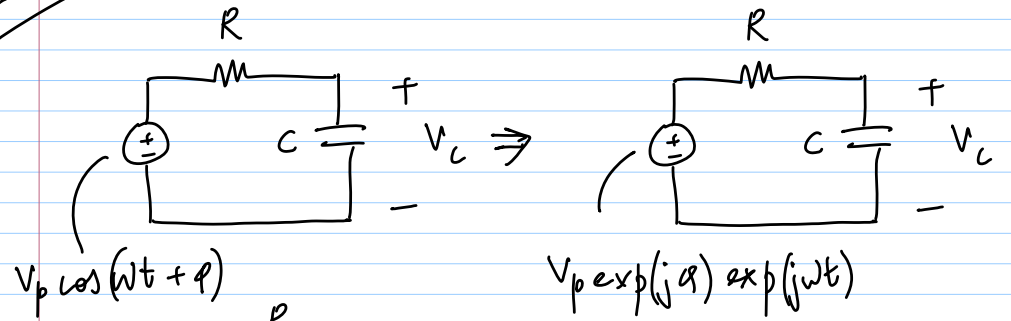


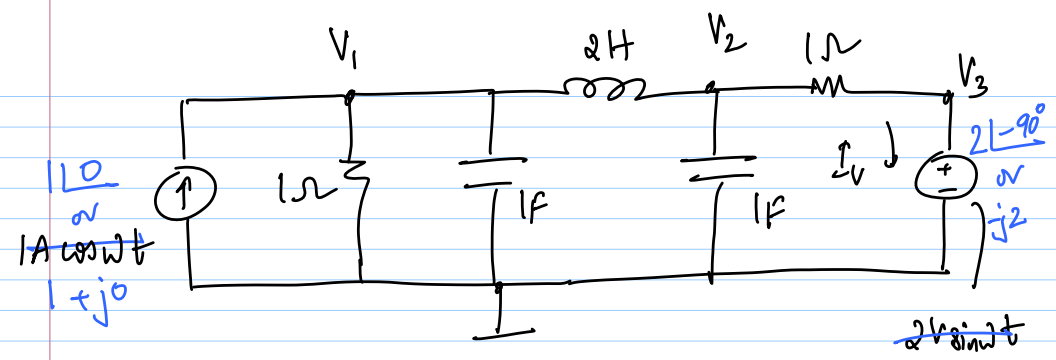
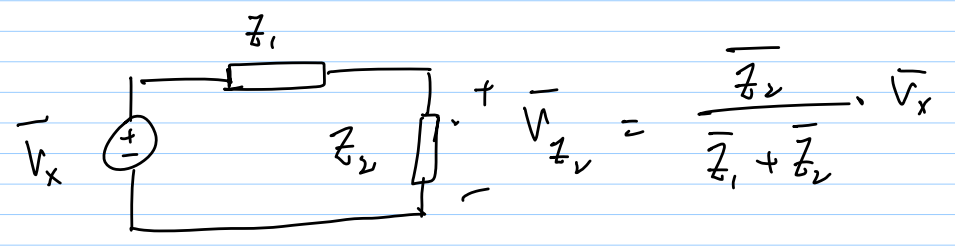
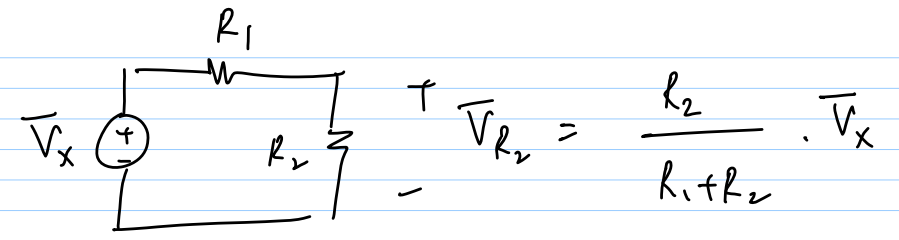
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Lec 30



$$V_c = \frac{\frac{1}{j\omega C}}{R + \frac{1}{j\omega C}} \cdot V_p L \phi$$

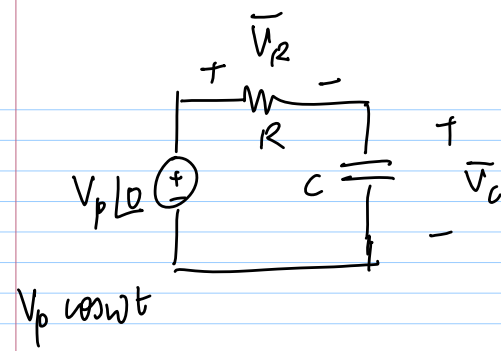
$$= \frac{1}{1 + j\omega CR} V_p L \phi$$



$$[\bar{Y}] [\bar{V}] = [\bar{I}]$$

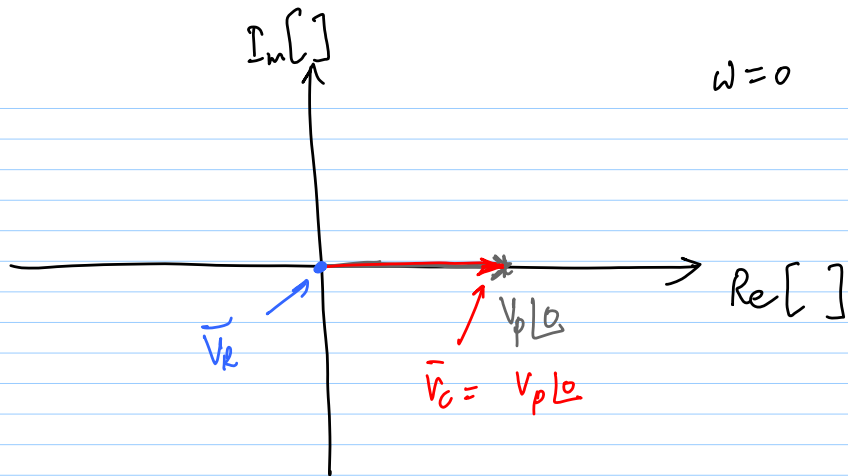
$$\begin{bmatrix} V_1 \\ V_2 \\ V_3 \\ I_v \end{bmatrix}$$

$$\begin{bmatrix} 1+j\omega + \frac{1}{j2\omega} & -\frac{1}{j2\omega} & 0 & 0 \\ -\frac{1}{j2\omega} & 1+j\omega + \frac{1}{j2\omega} & -1 & 0 \\ 0 & -1 & +1 & +1 \\ 0 & 0 & +1 & 0 \end{bmatrix} \begin{bmatrix} \bar{V}_1 \\ \bar{V}_2 \\ \bar{V}_3 \\ \bar{I}_0 \end{bmatrix} = \begin{bmatrix} -1 \\ 0 \\ 0 \\ -j2 \end{bmatrix}$$

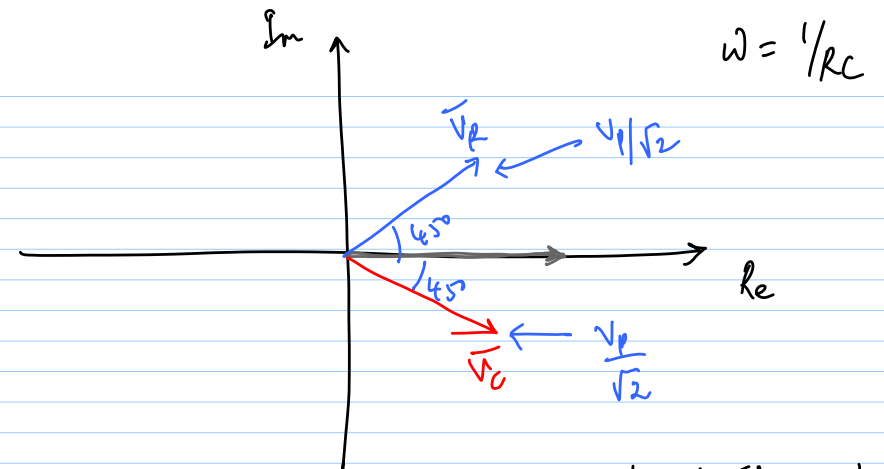


$$\bar{V}_C = \frac{1/j\omega C}{R + 1/j\omega C} \cdot V_p = \frac{1}{1 + j\omega CR} \cdot V_p$$

$$\bar{V}_R = \frac{R}{R + 1/j\omega C} \cdot V_p = \frac{j\omega CR}{1 + j\omega CR} \cdot V_p$$



Phasor
Diagrams
@ a given ω



$$\bar{V}_R = \left[\frac{j}{1+j} \right] \cdot V_p = \frac{1}{\sqrt{2}} \cdot \angle 45^\circ \cdot V_p \cos \omega t$$

$$\bar{V}_C = \left[\frac{1}{1+j} \right] \cdot V_p = \frac{1}{\sqrt{2}} \cdot \angle -45^\circ \cdot V_p \cos \omega t$$