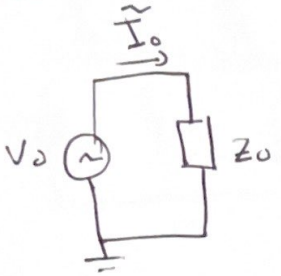
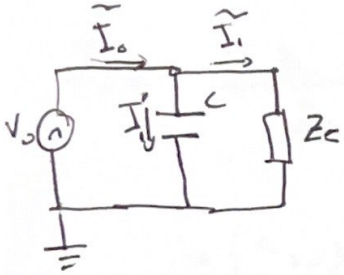
2)



$$V_0 = \tilde{I}_0 Z_0$$

$$\tilde{I}_0 = \frac{V_0(2j\omega C Z_L - 3\omega^2 LC - j\omega^3 LC^2 Z_L + \omega^4 L^2 C^2 + 1)}{Z_L + 2j\omega L - \omega^2 LC Z_L - j\omega^3 L^2 C}$$



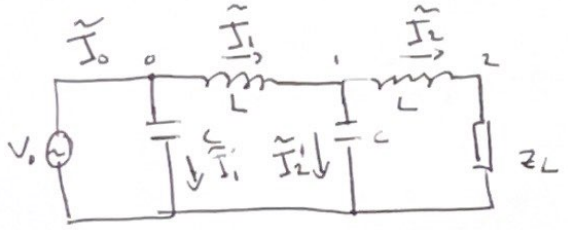
$$\tilde{I}_0 = \tilde{I}_1 + \tilde{I}_1' \qquad I_1' = \frac{V_0}{1/j\omega C} = j\omega C V_0$$

$$\tilde{I}_1 = \frac{V_0(2j\omega C Z_L - 3\omega^2 LC - j\omega^3 LC^2 Z_L + \omega^4 L^2 C^2 + 1)}{Z_L + 2j\omega L - \omega^2 LC Z_L - j\omega^3 L^2 C} - j\omega C V_0$$

$$\tilde{I}_1 = \frac{2j\omega C Z_L V_0 - 3\omega^2 LC V_0 - j\omega^3 LC^2 Z_L V_0 + \omega^4 L^2 C^2 V_0 + V_0}{Z_L + 2j\omega L - \omega^2 L Z_L - j\omega^3 L^2 C} +$$

$$\frac{-j\omega C V_0 Z_L + 2j\omega^2 LC V_0 + j\omega^3 LC^2 Z_L V_0 + j^2 \omega^4 L^2 C^2 V_0}{Z_L + 2j\omega L - \omega^2 L Z_L - j\omega^3 L^2 C}$$

$$\tilde{I}_1 = \frac{j\omega C Z_L V_0 - \omega^2 LC V_0 + V_0}{Z_L + 2j\omega L - \omega^2 LC Z_L - j\omega^3 L^2 C}$$



$$\tilde{V}_1 = V_0 - \tilde{I}_1 Z_{ind} \qquad Z_{ind} = j\omega L$$

$$\tilde{V}_1 = V_0 - \frac{j\omega L(j\omega C Z_L V_0 - \omega^2 LCV_0 + V_0)}{Z_L + 2j\omega L - \omega^2 LCZ_L - j\omega^3 L^2 C}$$

$$\tilde{V}_1 = \frac{V_0 Z_L + 2j\omega L V_0 - \omega^2 LCZ_L V_0 - j\omega^3 L^2 C V_0}{Z_L + 2j\omega L - \omega^2 LCZ_L - j\omega^3 L^2 C} +$$

$$\frac{+j^2\omega^2 LC Z_L V_0 + j\omega^3 L^2 C V_0 - j\omega L V_0}{Z_L + 2j\omega L - \omega^2 LCZ_L - j\omega^3 L^2 C}$$

$$\boxed{\tilde{V}_1 = \frac{V_0 Z_L + j\omega L V_0}{Z_L + 2j\omega L - \omega^2 LCZ_L - j\omega^3 L^2 C}}$$

$$\tilde{I}_1 = \tilde{I}_2 + \tilde{I}_2' \longleftarrow \tilde{I}_2' = \frac{V_1}{1/j\omega C} = j\omega C V_1$$

$$\tilde{I}_2 = \tilde{I}_1 - j\omega C V_1$$

$$\tilde{I}_2 = \frac{j\omega C Z_L V_0 - \omega^2 LCV_0 + V_0}{Z_L + 2j\omega L - \omega^2 LCZ_L - j\omega^3 L^2 C} + \frac{-j\omega C V_0 Z_L + \omega^2 LCV_0}{Z_L + 2j\omega L - \omega^2 LCZ_L - j\omega^3 L^2 C}$$

$$\boxed{\tilde{I}_2 = \frac{V_0}{Z_L + 2j\omega L - \omega^2 LCZ_L - j\omega^3 L^2 C}}$$

$$\hat{V}_2 = \hat{V}_1 - \hat{I}_2 j\omega L$$

$$= \frac{V_0 Z_L + j\omega L V_0}{Z_L + 2j\omega L - \omega^2 LCZ_L - j\omega^3 L^2 C} + \frac{-j\omega L V_0}{Z_L + 2j\omega L - \omega^2 LCZ_L - j\omega^3 L^2 C}$$

$$\tilde{V}_2 = \frac{V_0 Z_L}{Z_L + 2j\omega L - \omega^2 LCZ_L - j\omega^3 L^2 C}$$