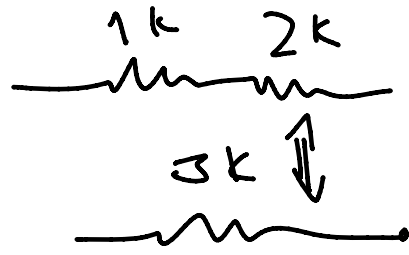


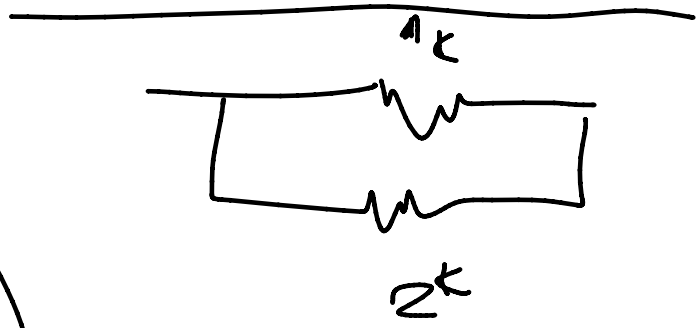


$\Sigma \leftarrow \text{IPA}$

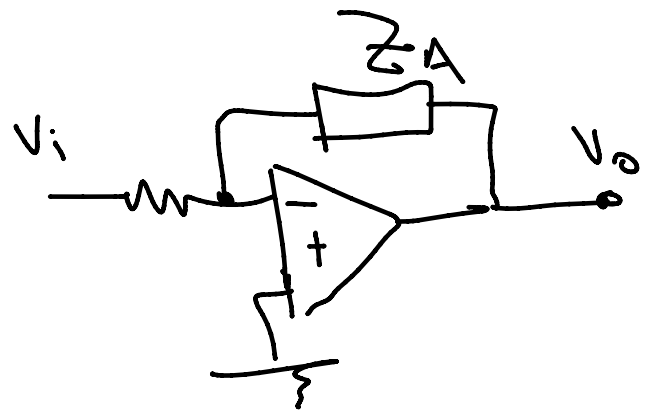
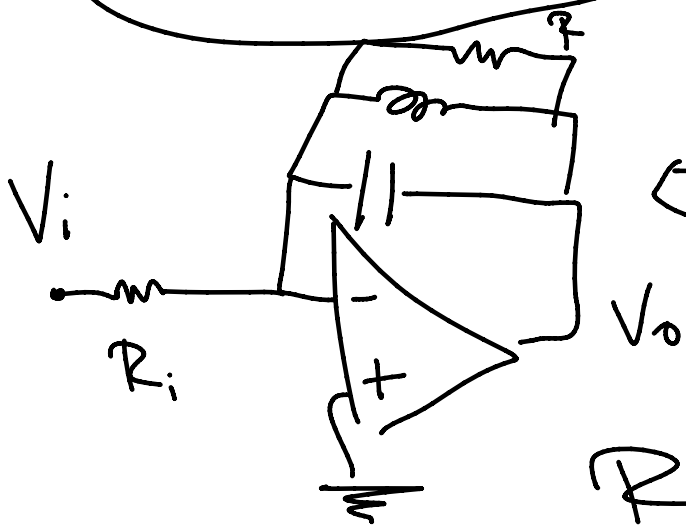


$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2}$$

$$R = \frac{R_1 \cdot R_2}{R_1 + R_2} = \frac{2}{3}$$



$R \frac{2}{3} = 666.66 \Omega$



$R, j\omega L, \frac{1}{j\omega C}$

$$\left| \frac{V_o}{V_i} \right| =$$

$$\frac{1}{Z_{\Delta}} = \frac{1}{R} + \frac{1}{j\omega L} + j\omega C \Rightarrow$$

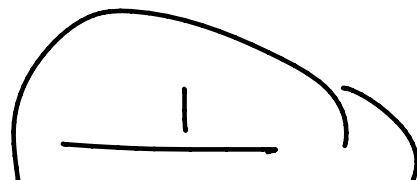
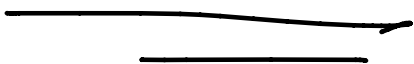
$Z_A = R + j\omega L$

$$\Rightarrow Z_A = \frac{1}{\frac{1}{R} + \frac{1}{j\omega L} + j\omega C}$$
$$= \frac{j\omega L R}{j\omega L + R + \omega^2 R C L}$$

$$\left| \frac{V_o}{V_i} \right|^2 = \left| \frac{\frac{-j\omega L R}{j\omega L + R + \omega^2 R C L}}{R_i} \right|^2 = \left| \frac{\omega R L \frac{1}{R_i}}{j\omega L + R + \omega^2 R C L} \right|^2$$

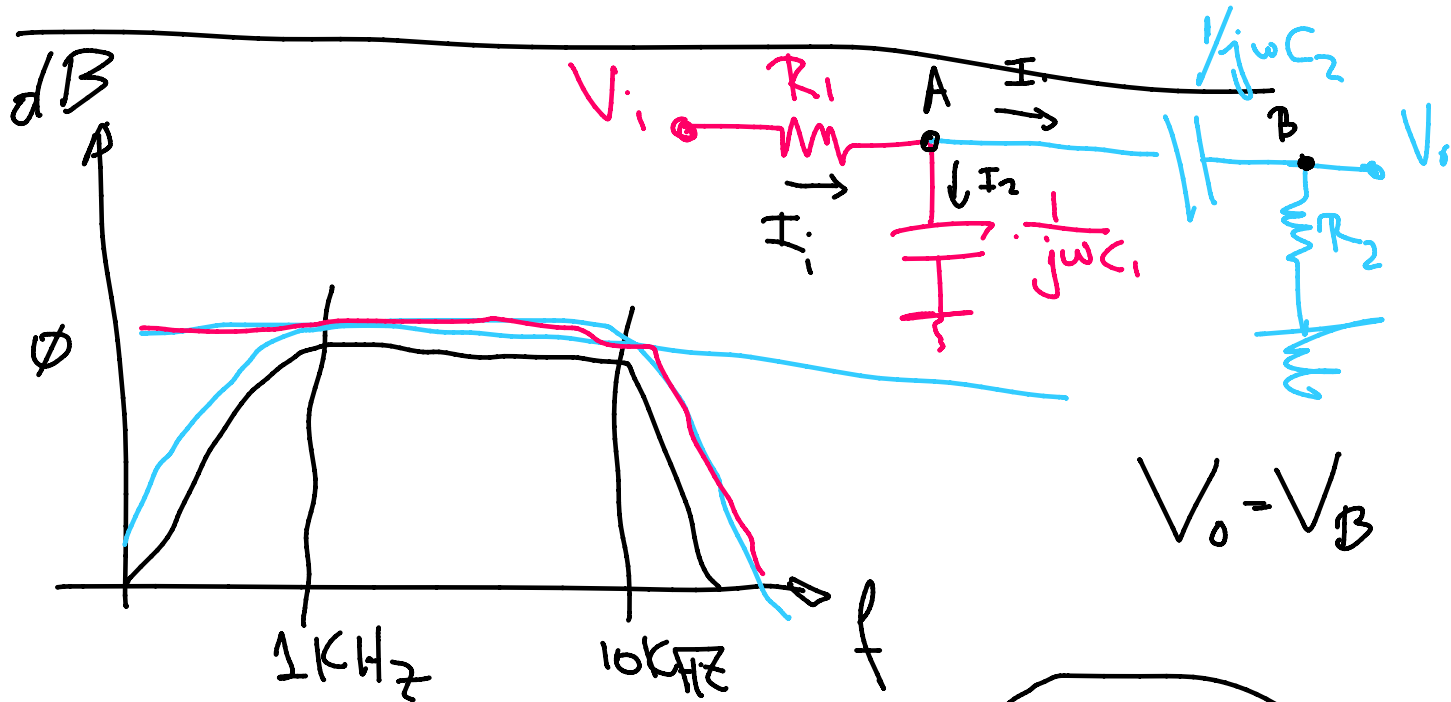
$$= \frac{\left| \frac{R L}{R_i} \right|^2}{\left| \frac{R}{\omega} + \omega R L C + jL \right|^2}$$

$$\left(\frac{R}{\omega} + \omega R L C \right)^2 + L^2$$



$$\left(\frac{1}{\omega} + \omega\right)^2 + 1$$

$$\left(\frac{1}{\omega} + \omega\right)^2 + 1$$



$$\frac{V_o}{V_i} =$$

$$I_i = I_1 + I_2 = \frac{V_i - V_A}{R_1} = \frac{V_A}{R_2 + \frac{1}{j\omega C_2}} + \frac{V_A}{\frac{1}{j\omega C_1}}$$

$$\Rightarrow V_i - V_A = R_1 \left(\frac{1}{R_2 + \frac{1}{j\omega C_2}} + j\omega C_1 \right) V_A \Rightarrow$$

$$V_A = V_i \cdot \frac{1}{1 + R_1 \left(\frac{1}{R_2 + \frac{1}{j\omega C_2}} + j\omega C_1 \right)}$$

$$V_o = V_A \left(\frac{R_2}{R_2 + \frac{1}{j\omega C_2}} \right)$$

$$\frac{V_o}{V_i} = \frac{\frac{R_2}{R_2 + \frac{1}{j\omega C_2}}}{\left(1 + R_1 \left(\frac{1}{R_2 + \frac{1}{j\omega C_2}} + j\omega C_1 \right) \right)}$$

$$f_1 = \frac{1}{2\pi R_1 C_1}$$

$$f_2 = \frac{1}{2\pi R_2 C_2}$$