

35.) R, L sorosan $\varphi_1 = \frac{\pi}{3}$ $U_{eff1} = U_{eff2} = U_{eff}$ $f_2 = 2f_1$ $\frac{P_2}{P_1} = ?$

$$\omega = 2\pi f$$

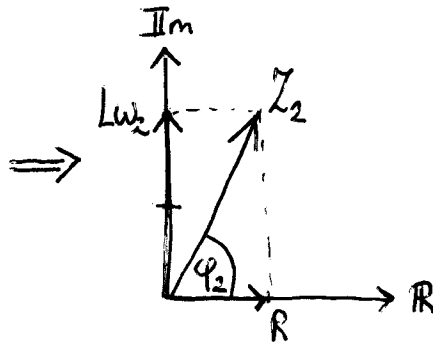
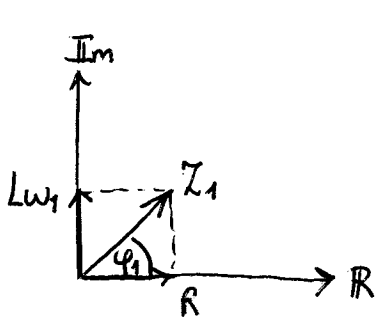
$$P = I_{eff}^2 R \quad \left. \begin{array}{l} \text{valós} \\ \text{átlag} \\ \text{teljesítmény} \end{array} \right\}$$

$$\operatorname{tg} \varphi = \frac{L\omega - \frac{1}{\omega C}}{R}$$

$$I_{eff} = \frac{U_{eff}}{Z}$$

$$Z = \sqrt{R^2 + (L\omega - \frac{1}{\omega C})^2}$$

csak R és L



$$f_2 = 2f_1$$

$$\downarrow$$

$$\omega_2 = 2\omega_1$$

$$L\omega_2 = 2L\omega_1$$

$$\operatorname{tg} \varphi_1 = \frac{L\omega_1}{R} \rightarrow L\omega_1 = \operatorname{tg} \varphi_1 \cdot R \quad (1)$$

$$\frac{P_2}{P_1} = \frac{I_{eff2}^2 R}{I_{eff1}^2 R} = \frac{\frac{U_{eff}^2}{Z_2^2}}{\frac{U_{eff}^2}{Z_1^2}} = \frac{Z_1^2}{Z_2^2} = \frac{R^2 + (L\omega_1)^2}{R^2 + (L\omega_2)^2} = \frac{R^2 + (L\omega_1)^2}{R^2 + (2L\omega_1)^2} = \dots$$