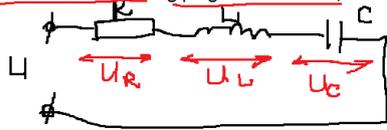


Arvuta vool ahelas ning pingehaigla osadel, kui $R=1\Omega$; $L=0,0127H$; $C=800\mu F$; $U=220V$; $f=50Hz$ Leida: $\cos\varphi$; P !



$\cos\varphi$ - võimsuse koefitsient
 $\mu - 10^{-6}$

Millise olukorraga on tegemist !

$$X_L = \omega L = 2\pi f L = 4\Omega$$

$$X_C = \frac{1}{\omega C} = \frac{1}{2\pi f C} = 4\Omega$$

$$Z = \sqrt{R^2 + (X_L - X_C)^2} = 1\Omega$$

$$I = \frac{U}{Z} = \frac{220}{1} = 220A$$

pinge resonants

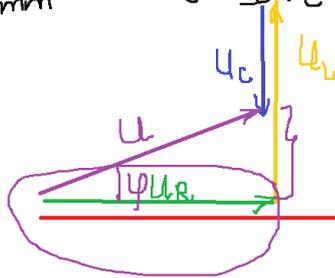
$$e_u = 20V/mm$$

$$e_i = 20A/mm$$

$$U_R = I R = 220V$$

$$U_L = I X_L = 4 \cdot 220 = 880V \Rightarrow 0$$

$$U_C = I X_C = 4 \cdot 220 = 880V$$



$$\cos\varphi = \frac{U_L - U_C}{U}$$

$$\cos\varphi = 1$$

$$P = I U \cos\varphi = 220 \cdot 220 = 48,4 kW$$

aktiivvõimsus

$$Q = I U \sin\varphi \text{ reaktiivvõimsus (var)}$$

$$S = \sqrt{P^2 + Q^2} \text{ koguvõimsus (VA)}$$