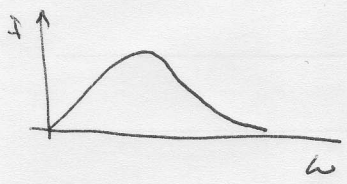
1. $\omega = 50\ \mathrm{rad/s}$

$\omega = 2\pi f = 2\pi \frac{1}{T} \Rightarrow T = \frac{2\pi}{\omega} = 126\ \mathrm{ms}$

2. $P = I^2 \cdot R$



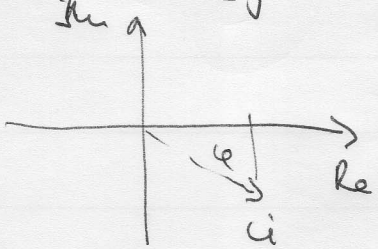
A

3. $\varphi_u = \frac{\pi}{2} \qquad \varphi_I = \frac{\pi}{2}$

$\varphi = \varphi_u - \varphi_I = 0 \Rightarrow$ NAPON I STRUJA SU U FAZI

R

7. $\underline{u} = \frac{3+2j}{5j} = -\frac{3}{5}j + \frac{2}{5} = \frac{2}{5} - \frac{3}{5}j$



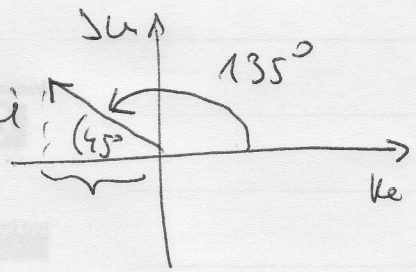
$tg\,\varphi = \frac{-\frac{3}{5}}{\frac{2}{5}} = -\frac{3}{2} \Rightarrow \varphi = -56{,}3°$

$u(t) = U_m \sin(\omega t + \varphi)$

$U_m = \sqrt{2} \cdot |\underline{u}| = \sqrt{2}\sqrt{\frac{4}{25} + \frac{9}{25}} = \sqrt{1{,}04}$

$u(t=0) = U_m \cdot \sin\varphi = -0{,}85\,V$

5.

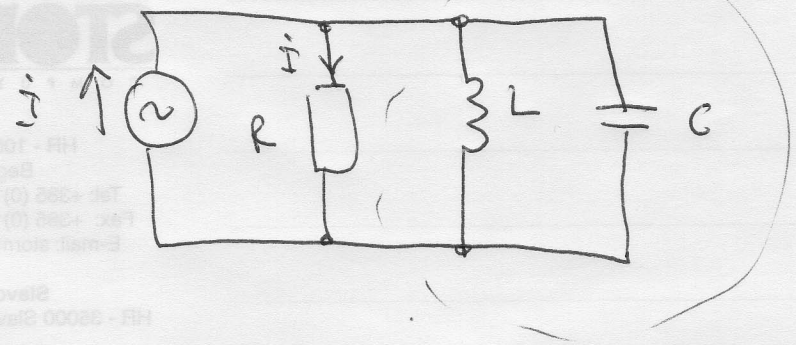


$\underline{u} = \frac{10}{\sqrt{2}} \angle 135°$

$\underline{u} = \frac{10}{\sqrt{2}} (\cos 135° + j \sin 135°)$

$\underline{u} = -5 + 5j$

6.



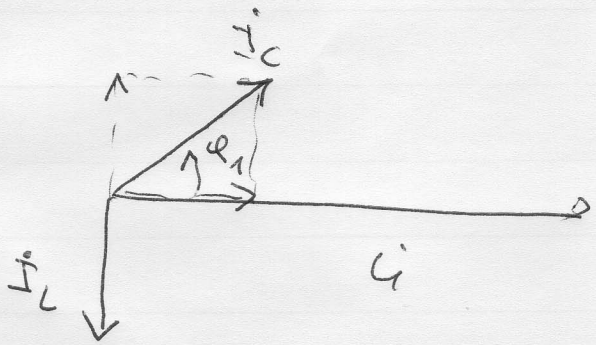
$X_L = X_C$

$$u_R = u_{izvora} = I \cdot R \uparrow \Rightarrow U_R \uparrow$$

B

7.

$$Z = \frac{(3-j4)}{jX_L + 3 + (j4)}$$



$Z_1 = 3 - j4$

$\Rightarrow \varphi_1 = -53{,}13°$

$|\varphi_1| = 53{,}13°$

$$I_C = \frac{u}{|Z_1|} = \frac{u}{\sqrt{3^2+4^2}} = \frac{u}{5}$$

$$I_L = \frac{u}{X_L}$$

$$\frac{u}{X_L} = \frac{u}{5} \cdot \sin(|\varphi_1|) \Rightarrow X_L = \frac{5}{\sin\varphi_1} = 6{,}25\,\Omega$$