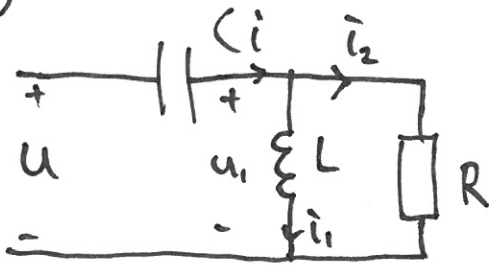


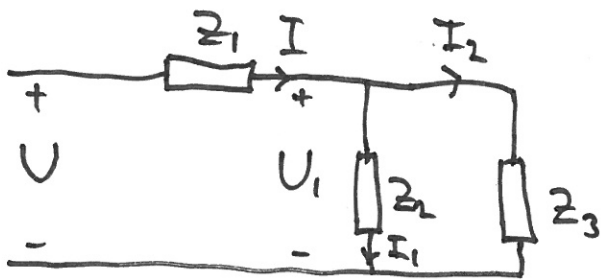
B 1.6)



$$C = 20 \mu\text{F}, R = 100 \Omega, L = 50 \text{mH}$$

$$u(t) = 10 \cdot \sqrt{2} \cdot \sin(1000 \cdot t) \text{ V}$$

Komplex schema:



$$U = 10 \cdot \sqrt{2} \cdot e^{j \cdot 0} = 10 \cdot \sqrt{2} \text{ V}$$

$$Z_1 = \frac{1}{j\omega C} = \frac{1}{j \cdot 1000 \cdot 20 \mu} = -50j$$

$$Z_2 = j\omega L = j \cdot 1000 \cdot 50 \text{m} = 50j$$

$$Z_3 = R = 100 \Omega$$

$$Z_2 \parallel Z_3 = \frac{50j \cdot 100}{50j + 100} = 20 + 40j \Omega$$

Ohms law:

$$I = U / Z_{\text{tot}}$$

$$= \frac{U}{Z_1 + Z_2 \parallel Z_3}$$

$$= \frac{10 \cdot \sqrt{2} \cdot e^{j \cdot 0}}{-50j + 20 + 40j} = 0.45 \cdot \sqrt{2} \cdot e^{j \cdot 0.46} \text{ A}$$

$$\Rightarrow i(t) = 0.45 \cdot \sqrt{2} \cdot \sin(1000 \cdot t + 0.46) \text{ A}$$

$$U_1 = I \cdot Z_2 \parallel Z_3 = 0.45 \cdot \sqrt{2} \cdot e^{j \cdot 0.46} \cdot (20 + 40j) = 20 \cdot \sqrt{2} \cdot e^{j \cdot \pi/2} \text{ V}$$

$$\Rightarrow u_1(t) = 20 \sqrt{2} \cdot \sin(1000 \cdot t + \pi/2) \text{ V}$$

$$I_1 = \frac{U_1}{Z_2} = \frac{20 \cdot \sqrt{2} \cdot e^{j \cdot \pi/2}}{50 \cdot e^{j \cdot \pi/2}} = 0.4 \sqrt{2} \text{ A}$$

$$\Rightarrow i_1(t) = 0.4 \cdot \sqrt{2} \cdot \sin(1000 \cdot t) \text{ A}$$

$$I_2 = \frac{U_1}{R} = 0.2 \cdot \sqrt{2} \cdot e^{j \cdot \pi/2} \text{ A}$$

$$\Rightarrow i_2(t) = 0.2 \cdot \sqrt{2} \cdot \sin(1000 \cdot t + \pi/2) \text{ A}$$