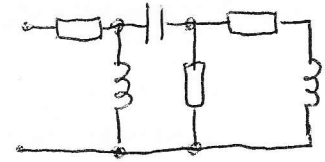
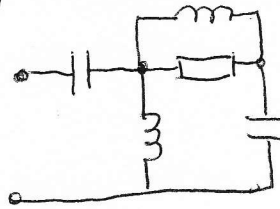
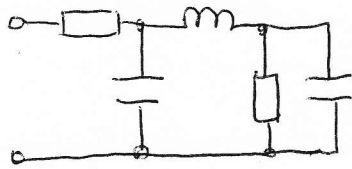


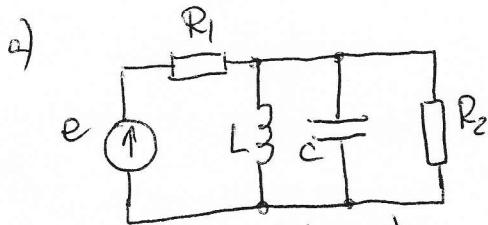
# Tutorials No 3

# Circuits and Systems

1. Draw the phasor diagrams for the circuits



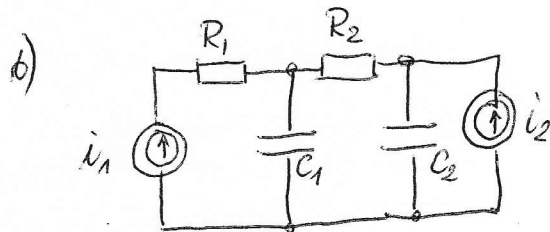
2. Calculate currents & powers in the circuit. Check balance of powers



$$e(t) = 10\sqrt{2} \sin(\omega t + 90^\circ)$$

$$R_1 = 2\Omega, R_2 = 1\Omega$$

$$\omega L = 1\Omega, \frac{1}{\omega C} = 2\Omega$$

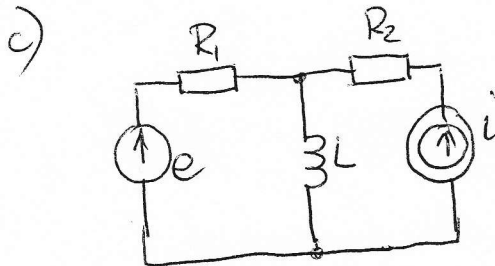


$$i_1(t) = 5 \sin(t - 45^\circ)$$

$$i_2(t) = 10\sqrt{2} \sin(t + 90^\circ)$$

$$R_1 = R_2 = 1\Omega$$

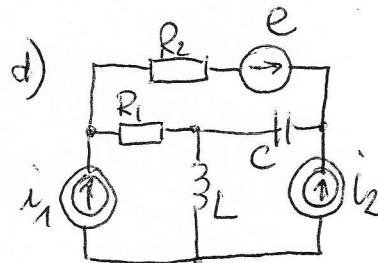
$$C_1 = C_2 = 1F$$



$$R_1 = 10\Omega, R_2 = 20\Omega, L = 2H$$

$$e(t) = 20\sqrt{2} \sin(5t + 90^\circ)$$

$$i(t) = 2 \sin(5t + 45^\circ)$$



$$R_1 = 1\Omega, R_2 = 4\Omega, \frac{1}{\omega C} = 5\Omega, \omega L = 10\Omega$$

$$i_1(t) = 2\sqrt{2} \sin \omega t$$

$$i_2(t) = 4 \sin(\omega t - 45^\circ)$$

$$e(t) = 10\sqrt{2} \sin(\omega t + 90^\circ)$$