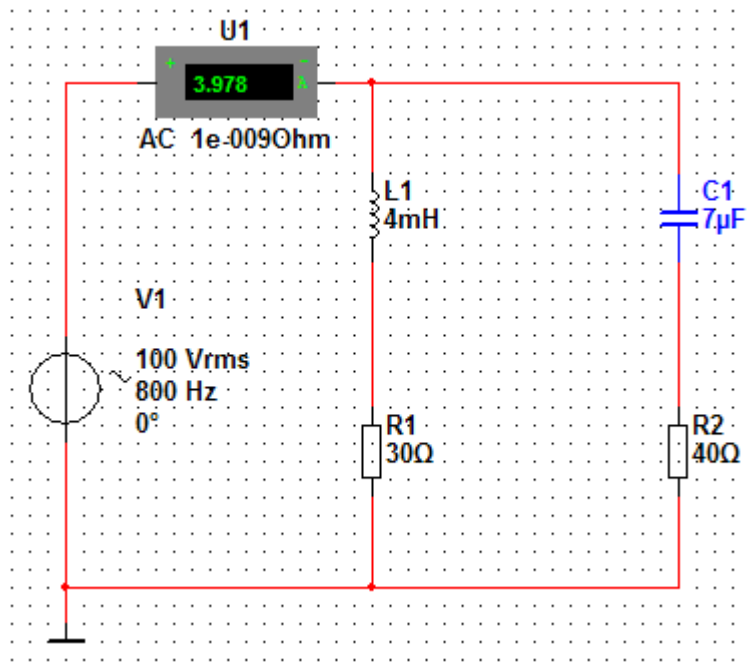




$$U := 100 \cdot V \quad f := 800 \cdot \text{Hz}$$

$$L := 4 \cdot \text{mH} \quad C := 7 \cdot \mu\text{F}$$

$$R_1 := 30 \cdot \Omega \quad R_2 := 20 \cdot \Omega$$

$$Z_{R1} := R_1 \quad Z_{R2} := R_2$$

$$Z_C := \frac{1}{j \cdot 2 \cdot \pi \cdot f \cdot C} \quad Z_C = -28.421j \, \Omega$$

$$Z_L := j \cdot 2 \cdot \pi \cdot f \cdot L \quad Z_L = 20.106j \, \Omega$$

$$Z_{E1} := Z_L + Z_{R1}$$

$$Z_{E1} = 30 + 20.106j \, \Omega$$

$$|Z_{E1}| = 36.115 \, \Omega$$

$$\arg(Z_{E1}) = 33.83 \, \text{Grad}$$

$$Z_{E2} := Z_C + Z_{R2}$$

$$Z_{E2} = 20 - 28.421j \, \Omega$$

$$|Z_{E2}| = 34.752 \, \Omega$$

$$\arg(Z_{E2}) = -54.865 \, \text{Grad}$$

$$Z := \frac{Z_{E1} \cdot Z_{E2}}{Z_{E1} + Z_{E2}}$$

$$Z = 24.256 - 4.976j \, \Omega$$

$$|Z| = 24.761 \, \Omega$$

$$\arg(Z) = -11.594 \, \text{Grad}$$

$$I := \frac{U}{Z}$$

$$I = 3.956 + 0.812j \, \text{A}$$

$$|I| = 4.039 \, \text{A}$$

$$\arg(I) = 11.594 \, \text{Grad}$$

$$I_1 := \frac{U}{Z_{E1}}$$

$$I_1 = 2.3 - 1.542j \, \text{A}$$

$$|I_1| = 2.769 \, \text{A}$$

$$\arg(I_1) = -33.83 \, \text{Grad}$$

$$I_2 := \frac{U}{Z_{E2}}$$

$$I_2 = 1.656 + 2.353j \, \text{A}$$

$$|I_2| = 2.878 \, \text{A}$$

$$\arg(I_2) = 54.865 \, \text{Grad}$$

$$U_L := I_1 \cdot Z_L$$

$$U_L = 30.995 + 46.247j \, \text{V}$$

$$|U_L| = 55.673 \, \text{V}$$

$$\arg(U_L) = 56.17 \, \text{Grad}$$

$$U_{R1} := I_1 \cdot Z_{R1}$$

$$U_{R1} = 69.005 - 46.247j \, \text{V}$$

$$|U_{R1}| = 83.069 \, \text{V}$$

$$\arg(U_{R1}) = -33.83 \, \text{Grad}$$

$$U_C := I_2 \cdot Z_C$$

$$U_C = 66.88 - 47.065j \, \text{V}$$

$$|U_C| = 81.78 \, \text{V}$$

$$\arg(U_C) = -35.135 \, \text{Grad}$$

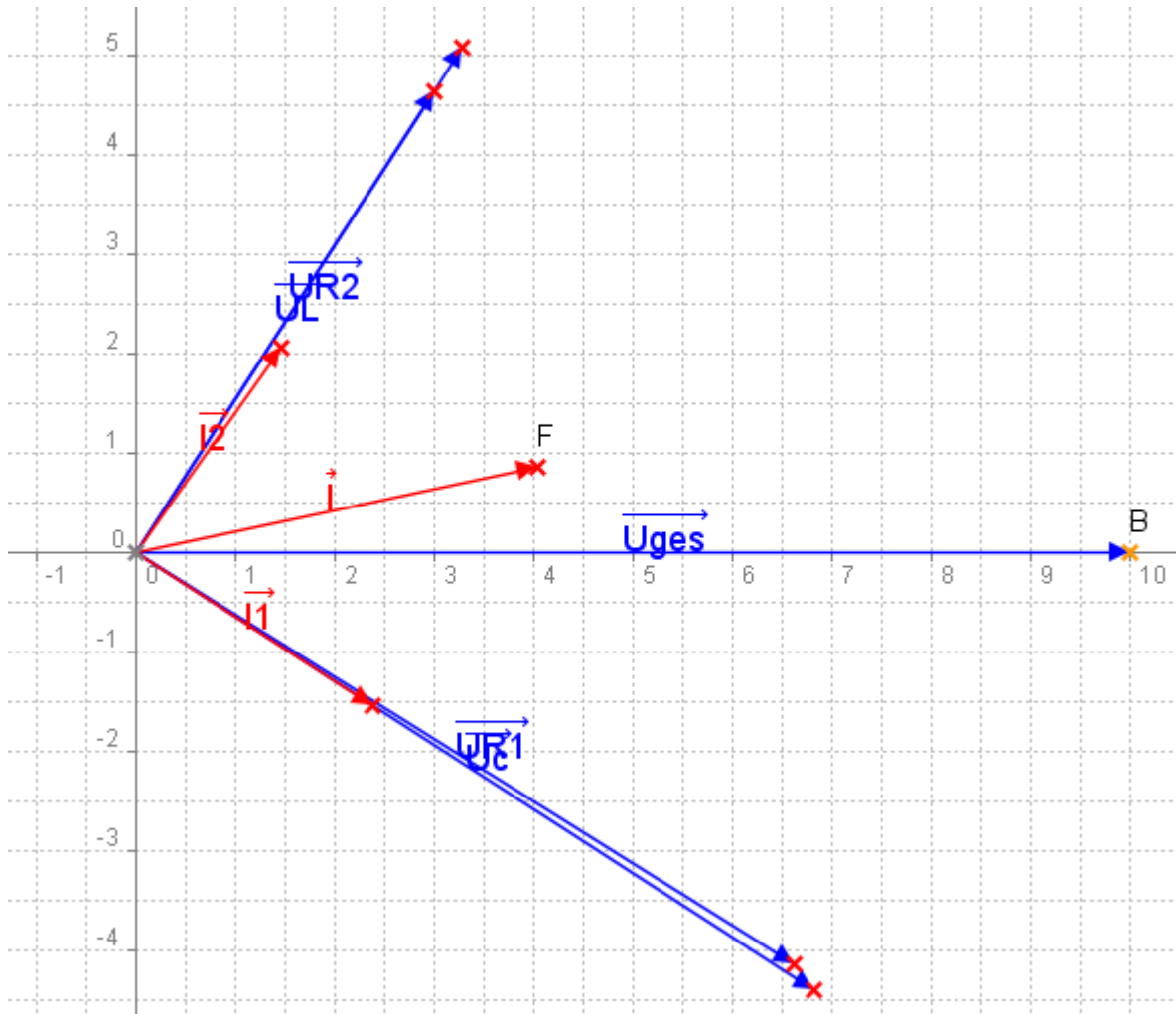
$$U_{R2} := I_2 \cdot Z_{R2}$$

$$U_{R2} = 33.12 + 47.065j \, \text{V}$$

$$|U_{R2}| = 57.55 \, \text{V}$$

$$\arg(U_{R2}) = 54.865 \, \text{Grad}$$

Zeigerbild:



A4) $Z_{R1} := 20 \cdot \Omega$ $Z_{R2} := 30 \cdot \Omega$ $f := 50 \cdot \text{Hz}$ $Z_C := \frac{1}{j \cdot 2 \cdot \pi \cdot f \cdot C}$ $Z_C = -454.728j \Omega$ $Z_{R3} := 60 \cdot \Omega$

$U := 100 \cdot \text{V}$

$U_{R2} := \frac{Z_{R2}}{Z_{R1} + Z_{R2}} \cdot U$ $U_{R2} = 60 \text{ V}$ $U_{R3} := \frac{Z_{R3}}{Z_C + Z_{R3}} \cdot U$ $U_{R3} = 1.711 + 12.969j \text{ V}$

$|U_{R3}| = 13.081 \text{ V}$ $\arg(U_{R3}) = 82.483 \text{ Grad}$

$U_A := U_{R2} - U_{R3}$ $U_A = 58.289 - 12.969j \text{ V}$

$|U_A| = 59.714 \text{ V}$

$\arg(U_A) = -12.544 \text{ Grad}$