

$$Z_L := j \cdot 20 \cdot \Omega \quad Z_R := 30 \cdot \Omega \quad Z_C := -j \cdot 20 \cdot \Omega \quad U := 10 \cdot V$$

$$Z_E := \frac{Z_R \cdot Z_C}{Z_R + Z_C} \quad Z_E = (9.231 - 13.846j) \cdot \Omega \quad |Z_E| = 16.641 \Omega \quad \varphi := \arg(Z_E) \quad \varphi = -56.31 \text{ Grad}$$

$$Z := Z_L + Z_E \quad Z = (9.231 + 6.154j) \cdot \Omega \quad |Z| = 11.094 \Omega \quad \varphi := \arg(Z) \quad \varphi = 33.69 \text{ Grad}$$

$$I := \frac{U}{Z} \quad I = (0.75 - 0.5j) \text{ A} \quad |I| = 0.901 \text{ A} \quad \varphi := \arg(I) \quad \varphi = -33.69 \text{ Grad}$$

$$U_L := I \cdot Z_L \quad U_L = (10 + 15j) \text{ V} \quad |U_L| = 18.028 \text{ V} \quad \varphi := \arg(U_L) \quad \varphi = 56.31 \text{ Grad}$$

$$U_R := I \cdot Z_E \quad U_R = -15j \text{ V} \quad |U_R| = 15 \text{ V} \quad \varphi := \arg(U_R) \quad \varphi = -90 \text{ Grad}$$

$$U_C := U_R$$

$$I_R := \frac{U_R}{Z_R} \quad I_R = -0.5j \text{ A} \quad |I_R| = 0.5 \text{ A} \quad \varphi := \arg(I_R) \quad \varphi = -90 \text{ Grad}$$

$$I_C := \frac{U_C}{Z_C} \quad I_C = 0.75 \text{ A} \quad |I_C| = 0.75 \text{ A} \quad \varphi := \arg(I_C) \quad \varphi = -3.393 \times 10^{-15} \text{ Grad}$$

$$f := 1 \cdot \text{kHz}$$

$$X_L := 20 \cdot \Omega$$

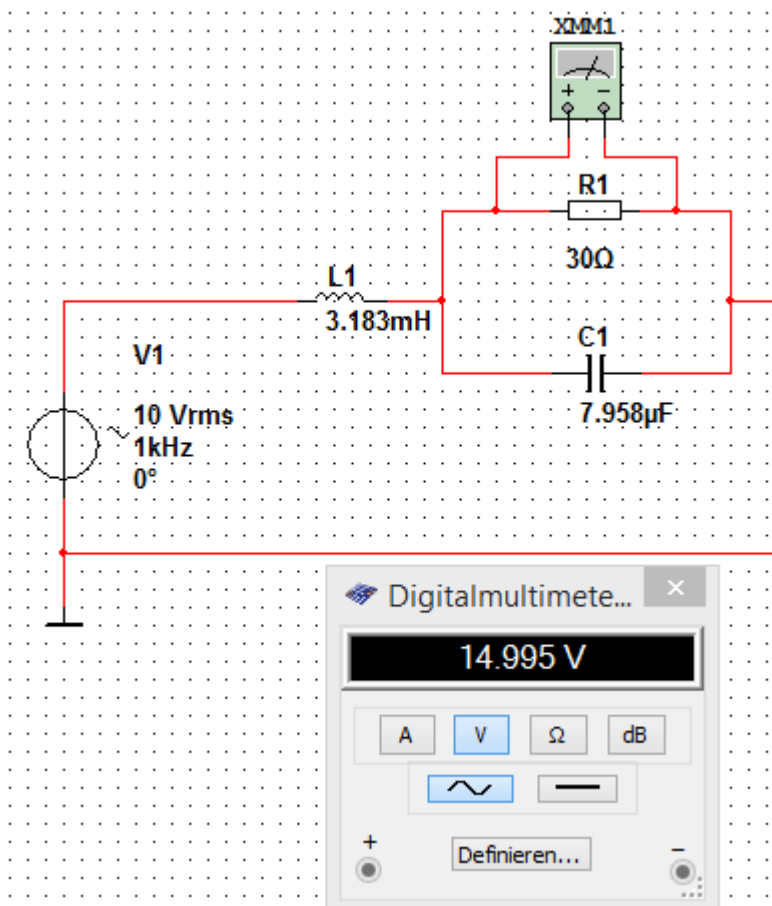
$$X_C := 20 \cdot \Omega$$

$$L := \frac{X_L}{2 \cdot \pi \cdot f}$$

$$L = 3.183 \text{ mH}$$

$$C := \frac{1}{2 \cdot \pi \cdot f \cdot X_C}$$

$$C = 7.958 \mu\text{F}$$



Zeigerbild:

