

Aufgabe i.5 a

$$\omega = 2 \cdot \pi \cdot f \rightarrow \omega = 2 \cdot \pi \cdot 1 \text{ kHz} \rightarrow \underline{\omega = 2000 \pi \frac{1}{\text{s}}}$$

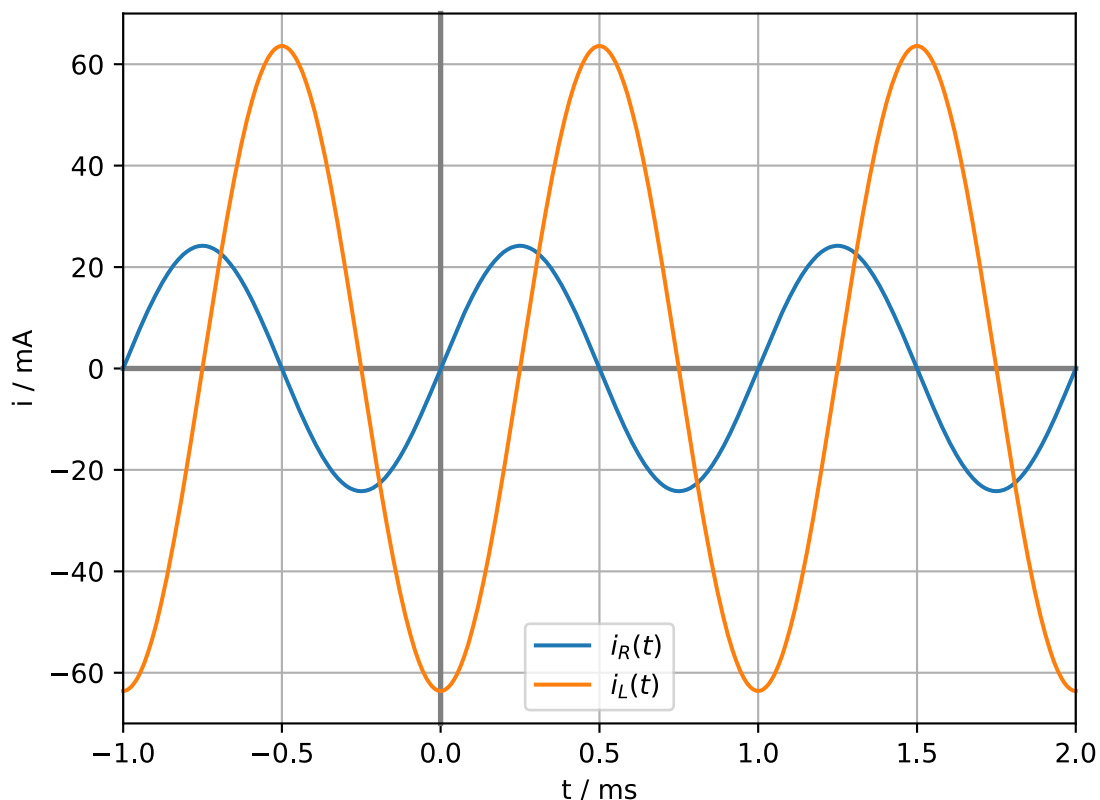
$$\hat{i}_R = \frac{\hat{u}}{R} \rightarrow \hat{i}_R = \frac{8 \text{ V}}{330 \Omega} \rightarrow \underline{\hat{i}_R = 24,2 \text{ mA}}$$

$$X_L = \omega \cdot L \rightarrow X_L = 2000 \pi \frac{1}{\text{s}} \cdot 20 \text{ mH} \rightarrow \underline{X_L = 125,7 \Omega}$$

$$\hat{i}_L = \frac{\hat{u}}{X_L} \rightarrow \hat{i}_L = \frac{8 \text{ V}}{125,7 \Omega} \rightarrow \underline{\hat{i}_L = 63,6 \text{ mA}}$$

$$\underline{i_R(t) = 24,2 \text{ mA} \cdot \sin\left(2000 \pi \frac{1}{\text{s}} \cdot t\right)}$$

$$\underline{i_L(t) = 63,6 \text{ mA} \cdot \sin\left(2000 \pi \frac{1}{\text{s}} \cdot t + \frac{\pi}{2}\right) ; i_L(t) = -63,6 \text{ mA} \cdot \cos\left(2000 \pi \frac{1}{\text{s}} \cdot t\right)}$$

Aufgabe 2 b:

Arbeitsblatt Nr.

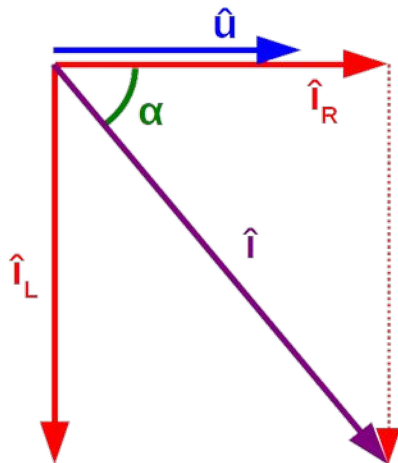
Datum:

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Klasse:

Fach:

Aufgabe 2 c:



Aufgabe 2 d:

$$\hat{i} = \sqrt{\hat{i}_R^2 + \hat{i}_L^2} \rightarrow \hat{i} = \sqrt{(24,2 \text{ mA})^2 + (63,6 \text{ mA})^2} \rightarrow \underline{\hat{i} = 67,8 \text{ mA}}$$

$$\alpha = \arctan\left(\frac{\hat{i}_L}{\hat{i}_R}\right) \rightarrow \alpha = \arctan\left(\frac{63,6 \text{ mA}}{24,2 \text{ mA}}\right)$$

$$\hookrightarrow \underline{\alpha = 69,1^\circ} ; \underline{\alpha = 0,384 \pi} ; \alpha = 1,206$$