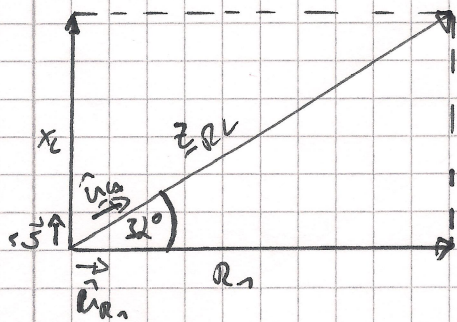


## Aufgabe 2

$$X_L = \omega L = 200 \pi \text{ s}^{-1} \cdot 10 \cdot 10^{-3} \text{ VsA}^{-1} \\ = 6,28 \text{ u}\Omega$$

Zeigerdiagramm  $R_1$  und  $L$  (Maßstab  $1 \text{ cm} \hat{=} 2 \text{ u}\Omega$ )

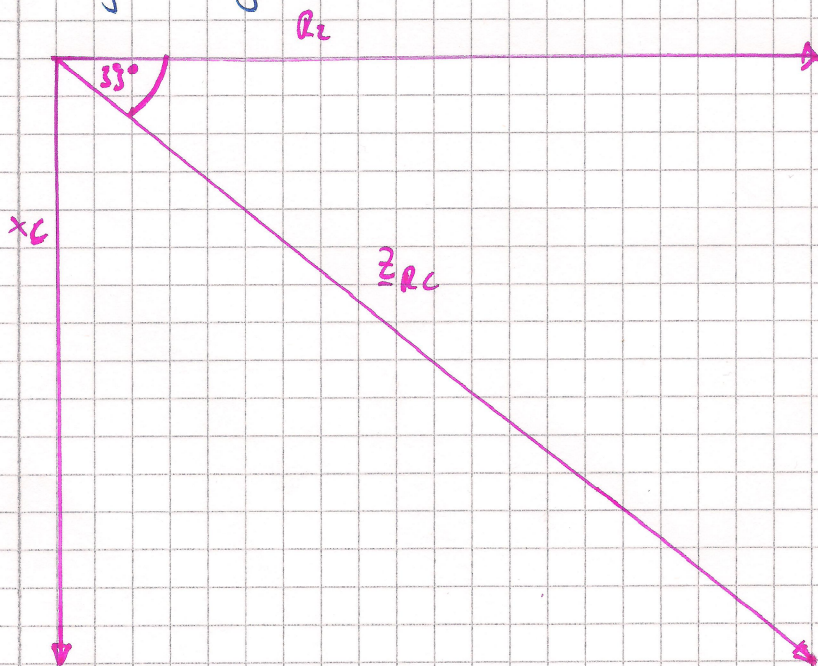


$$\frac{\hat{U}_{R1}}{R_1} = \frac{S_{\text{eff}}}{S_{\text{eff}}} \Rightarrow \hat{U}_{R1} = \frac{S_{\text{eff}}}{S_{\text{eff}}} \hat{U}_q = 8,5 \text{ V}$$

$$\hat{I}_1 = \frac{\hat{U}_{R1}}{R_1} = \frac{8,5 \text{ V}}{10 \text{ u}\Omega} = 850 \text{ mA} \quad \hat{I}_1 = 850 \text{ mA} \cdot e^{-j32^\circ}$$

$$X_C = \frac{1}{\omega C} = \frac{1}{200 \pi \text{ s}^{-1} \cdot 100 \cdot 10^{-6} \text{ AsV}^{-1}} = 15,92 \text{ u}\Omega$$

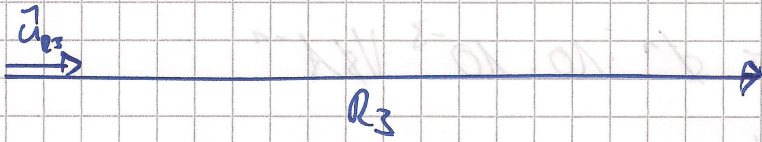
Zeigerdiagramm  $R_2$  und  $C$  (Maßstab  $1 \text{ cm} \hat{=} 2 \text{ u}\Omega$ )



$$\frac{\hat{U}_{R2}}{R_2} = \frac{10 \text{ u}\Omega}{12,8 \text{ u}\Omega} \Rightarrow \hat{U}_{R2} = 7,8 \text{ V}$$

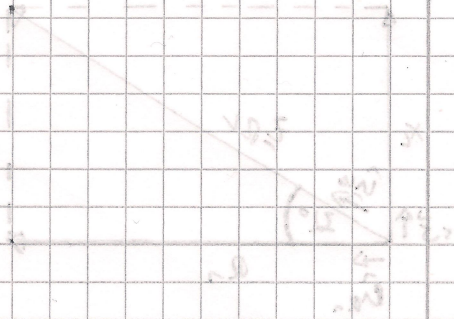
$$\hat{I}_2 = \frac{\hat{U}_{R2}}{R_2} = \frac{7,8 \text{ V}}{20 \text{ u}\Omega} = 390 \text{ mA} \quad \hat{I}_2 = 390 \text{ mA} \cdot e^{j33^\circ}$$

Zeigerdiagramm  $R_3$



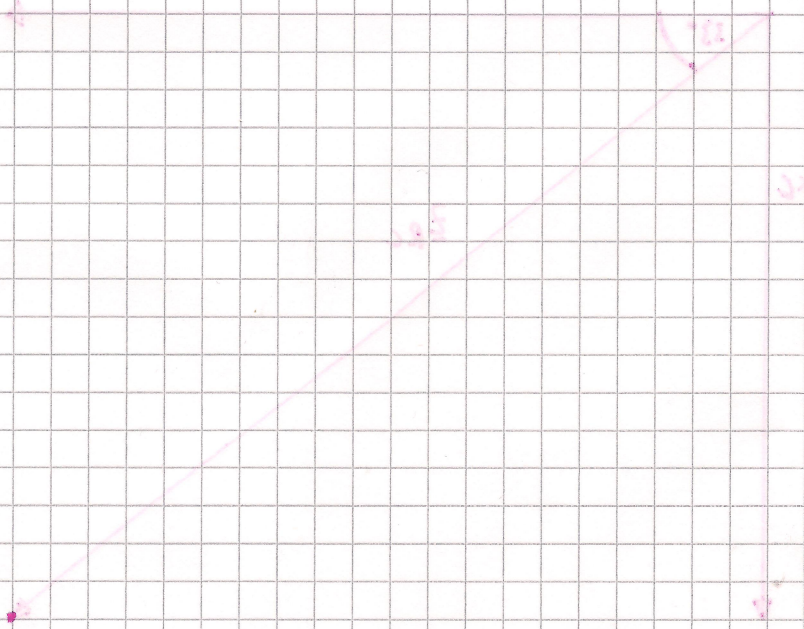
$$\vec{u}_{R3} = \vec{u}_q = 10V$$

$$\vec{i}_3 = 1A$$



$$u = \sqrt{u_{R3}^2 + u_q^2} = \sqrt{10^2 + 10^2} = 14.14V$$

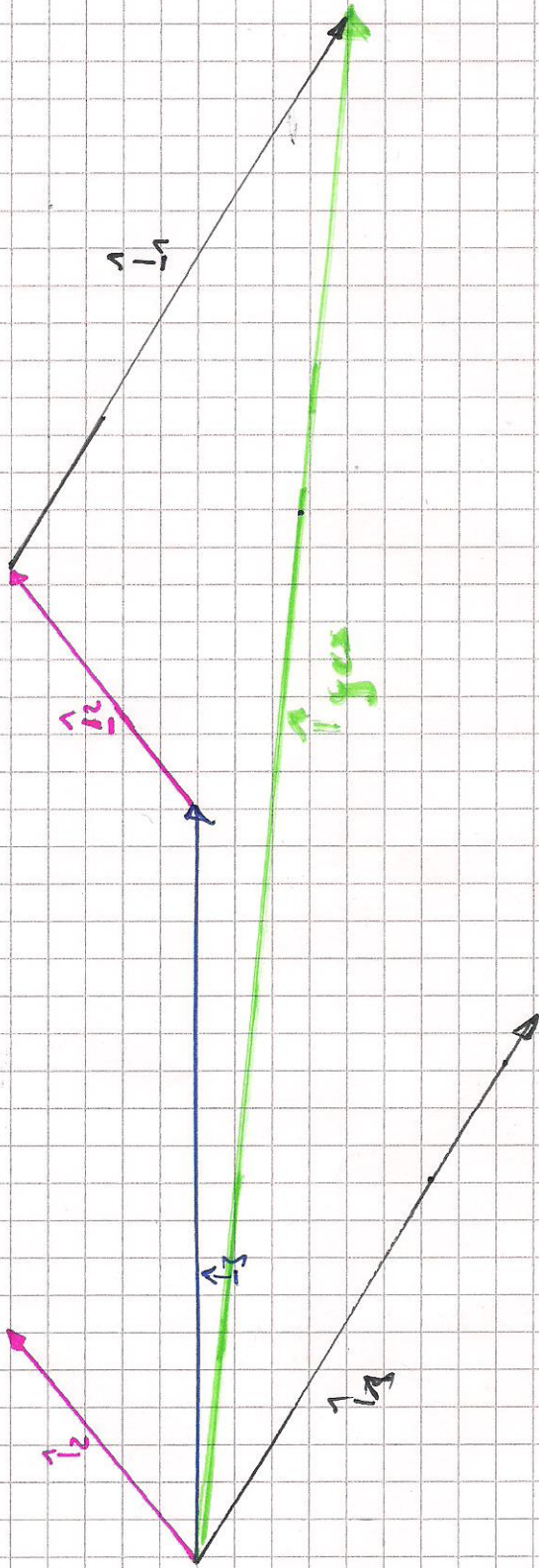
$$\alpha = \arctan\left(\frac{u_q}{u_{R3}}\right) = \arctan\left(\frac{10}{10}\right) = 45^\circ$$



$$u = \sqrt{u_{R3}^2 + u_q^2} = \sqrt{10^2 + 10^2} = 14.14V$$

$$\alpha = \arctan\left(\frac{u_q}{u_{R3}}\right) = \arctan\left(\frac{10}{10}\right) = 45^\circ$$

Gesamtstrom  $10 \text{ cm} \hat{=} 1 A$



$$\vec{i}_{ges} = 206 A e^{-j\omega t}$$