MLS2 – LÖS2 : BSP 1

1.1) $\underline{Z}_L = j\omega L$

$\underline{Z}_C = \frac{1}{j\omega C}$

$\underline{Z}_R = R$

$$\underline{Z}_{tot} = \underline{Z}_L + R \parallel \underline{Z}_C = j\omega L + \frac{R \cdot \frac{1}{j\omega C}}{R + \frac{1}{j\omega C}} = j\omega L + \frac{R}{j\omega CR + 1}$$

1.2) · ZUERST $\hat{\underline{U}}_C$ BESTIMMEN (SPANNUNGSTEILER)

$$\rightsquigarrow \hat{\underline{U}}_C = \hat{\underline{U}}_0 \cdot \frac{\underline{Z}_R \parallel \underline{Z}_C}{\underline{Z}_R \parallel \underline{Z}_C + \underline{Z}_L} = \hat{\underline{U}}_0 \cdot \frac{\frac{R}{j\omega CR + 1}}{\frac{R}{j\omega CR + 1} + j\omega L} = \hat{\underline{U}}_0 \frac{R}{R + j\omega L - \omega^2 RLC}$$

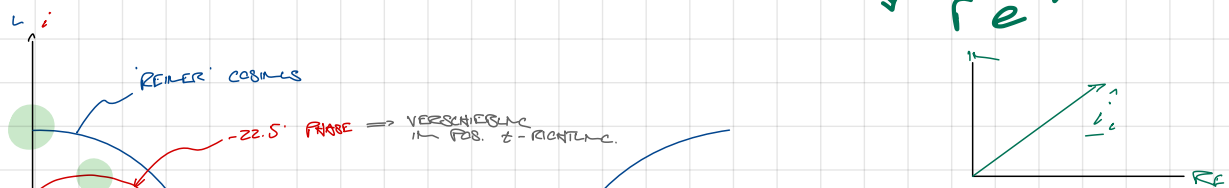
↳ ZWISCHENFRAGE : · WAS IST $\hat{\underline{U}}_R$?

· BESTIMME $\hat{\underline{i}}_C = \frac{\hat{\underline{U}}_C}{\underline{Z}_C}$ $(L = Z1)$

$$\rightsquigarrow \hat{\underline{i}}_C = \frac{\hat{\underline{U}}_C}{\underline{Z}_C} = \frac{\hat{\underline{U}}_0 \frac{R}{R + j\omega L - \omega^2 RLC}}{\frac{1}{j\omega C}} = \frac{R j\omega C}{R + j\omega L - \omega^2 RLC} \cdot \hat{\underline{U}}_0$$

$= a + bj$

↳ $re^{i\varphi}$



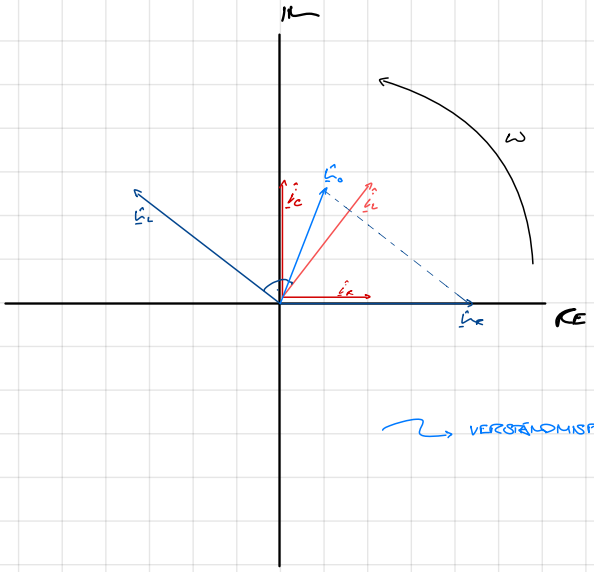
1.3)

↳ MIR GLAUBHAFT !:)

KONZEPTUELL WICHTIG : FREQUENZ ω BLEIBT GLEICH.

BSP 1 _ TEIL 2 :

1.4)



↳ VERSTÄNDNISFRAGE: WO IST $\underline{\hat{U}}_C$?

[KURZES TR INTERLEZZO]