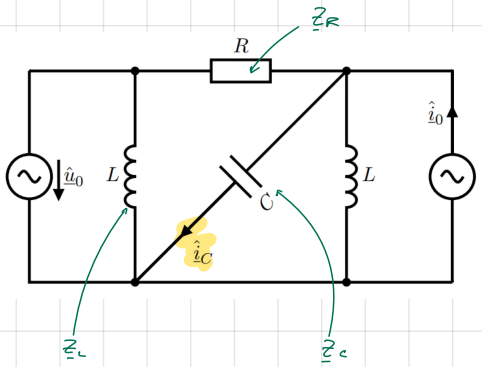
MLSZ_LV06 : BSP 1



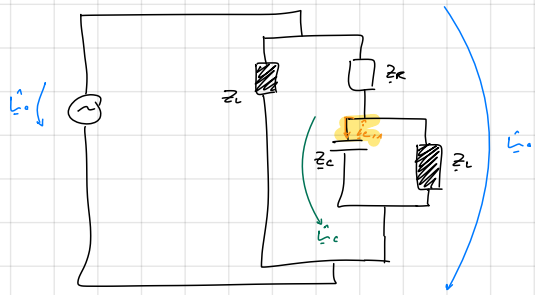
$\underline{Z}_R = R$

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

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

STEP 1 : EINFLUSS DER SPANNUNGSQUELLE $\underline{\hat{u}}_0$

⟶ ALLE ANDEREN QUELLEN $\hat{=}$ 0 SETZEN!

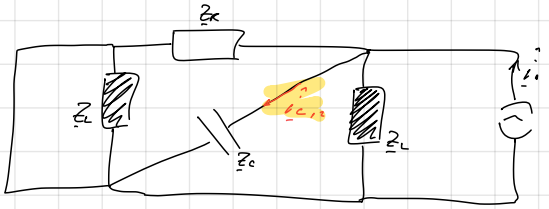


$$\Longrightarrow \quad \frac{\underline{\hat{u}}_C}{\underline{\hat{u}}_0} = \frac{\underline{\hat{i}}_{C,1} \cdot \underline{Z}_C}{\underline{\hat{u}}_0} = \frac{(\underline{Z}_C \parallel \underline{Z}_L)}{(\underline{Z}_C \parallel \underline{Z}_L) + Z_R}$$

$$\Longleftrightarrow \quad \underline{\hat{i}}_{C,1} = \frac{(\underline{Z}_C \parallel \underline{Z}_L)}{(\underline{Z}_C \parallel \underline{Z}_L) + Z_R} \cdot \frac{\underline{\hat{u}}_0}{\underline{Z}_C}$$

STEP 2 : EINFLUSS DER STROMQUELLE $\underline{\hat{i}}_0$

⟶ ALLE ANDEREN QUELLEN $\hat{=}$ 0 SETZEN!



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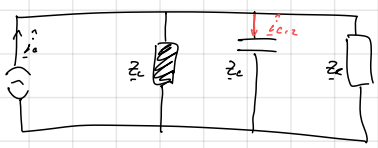
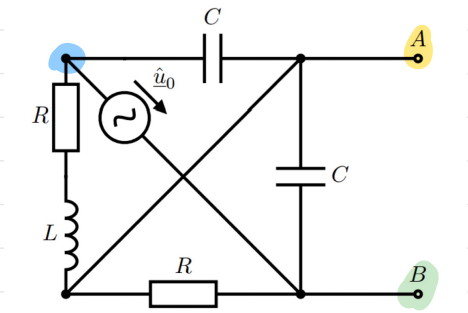


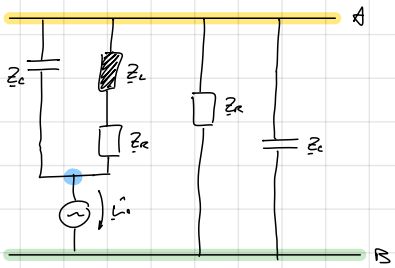
⟶ STROMTEILER : $\underline{\hat{i}}_{C,2} = \underline{\hat{i}}_0 \cdot \frac{(\underline{Z}_R \parallel \underline{Z}_L)}{(\underline{Z}_R \parallel \underline{Z}_L) + \underline{Z}_C}$

STEP 3 : $\underline{\hat{i}}_C = \underline{\hat{i}}_{C,1} + \underline{\hat{i}}_{C,2}$

MUSZ_WS06 : BSP 2 (SKIZZIERSTRATEGIE ...)

STEP 0 : UMZEICHNEN



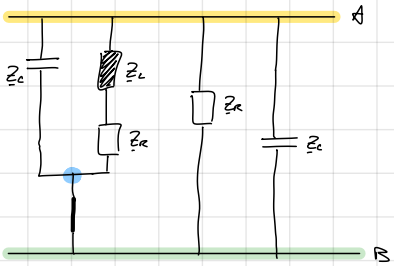


$\underline{Z}_R = R$

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

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

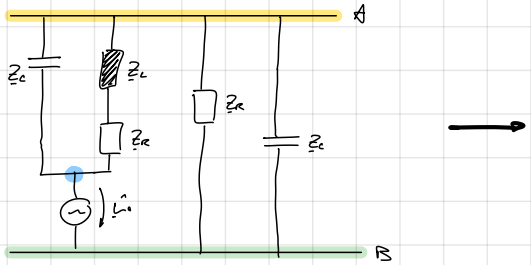
STEP 1 : INNENWIDERSTAND $\underline{Z}_i$ BESTIMMEN (ALLE QUELLEN $\doteq 0$)

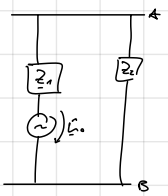


$\rightarrow \underline{Z}_i = \left(\underline{Z}_C \parallel Z_R \parallel \left[(\underline{Z}_R + \underline{Z}_L) \parallel \underline{Z}_C \right] \right)$

$\rightsquigarrow$ TASCHENRECHNER FÜR KOMPLEXE WERTE

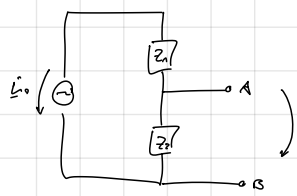
STEP 2 : LEERLAUFSPANNUNG $\hat{\underline{u}}_{LL}$ BESTIMMEN : (QUELLEN WIEDER EINSCHALTEN)





$\underline{Z}_1 = \left[(R + j\omega L) \parallel \underline{Z}_C \right]$

$\underline{Z}_2 = \left(\underline{Z}_R \parallel \underline{Z}_C \right) = \left(R \parallel \frac{1}{j\omega C} \right)$



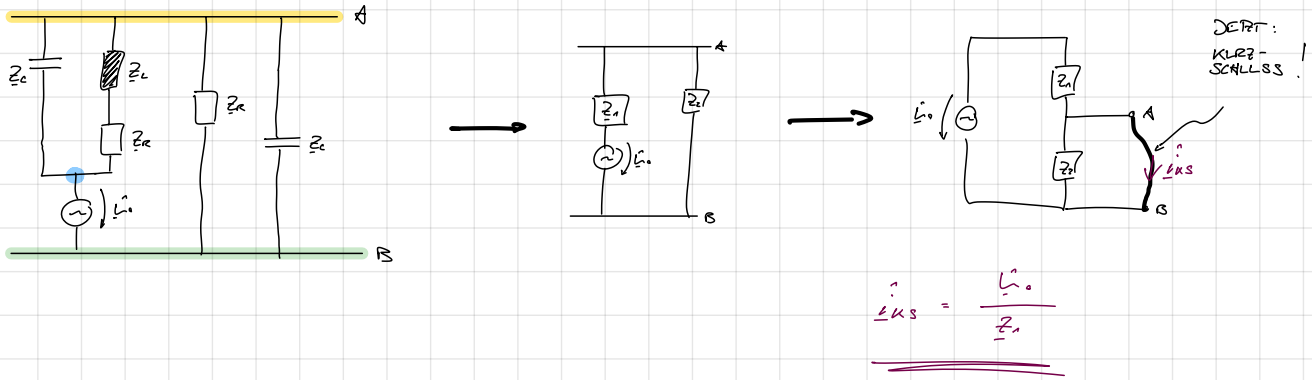
$\hat{\underline{u}}_{LL} = \hat{\underline{u}}_{AB} = \hat{\underline{u}}_0 \cdot \frac{\underline{Z}_2}{\underline{Z}_1 + \underline{Z}_2}$

MLSZ_L06: BSP 2 (TEIL 2)

STEP 2: KURZSCHLUSSSTROM $\hat{\underline{I}}_{ks}$ BERECHNEN

VARIANTE 1: $\hat{\underline{U}}_{LL} = \hat{\underline{I}}_{ks} \cdot \underline{Z}_i \quad \Longleftrightarrow \quad \boxed{\hat{\underline{I}}_{ks} = \frac{\hat{\underline{U}}_{LL}}{\underline{Z}_i}}$

VARIANTE 2:



$$\hat{\underline{I}}_{ks} = \frac{\hat{\underline{U}}_0}{\underline{Z}_1}$$