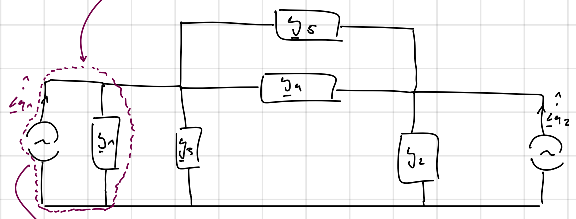
MLS2_WO8 : BSP1

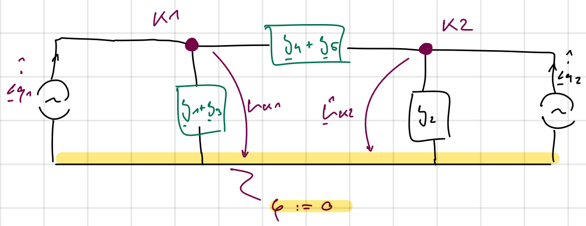
a) (ENTWEDER SUPERKNOTEN) ODER REALE SPANNUNGSQUELLE UMWANDELN (IN STROMQUELLE)



$$\hat{\underline{i}}_{q1} = \hat{\underline{u}}_{q1} \cdot \underline{y}_1$$

b)

c) d)



$$\Longrightarrow \quad K1: \quad (\underline{y}_3 + \underline{y}_1)\left[\hat{\underline{u}}_{K1}\right] + (\underline{y}_4 + \underline{y}_5)\left[\hat{\underline{u}}_{K1} - \hat{\underline{u}}_{K2}\right] - \hat{\underline{i}}_{q1} = 0$$

$$K2: \quad \underline{y}_2\left[\hat{\underline{u}}_{K2}\right] + (\underline{y}_4 + \underline{y}_5)\left[\hat{\underline{u}}_{K2} - \hat{\underline{u}}_{K1}\right] - \hat{\underline{i}}_{q2} = 0$$

$$\Longleftrightarrow \quad K1: \quad \hat{\underline{u}}_{K1}\left(\underline{y}_1 + \underline{y}_3 + \underline{y}_4 + \underline{y}_5\right) + \hat{\underline{u}}_{K2}\left(-\underline{y}_4 - \underline{y}_5\right) = \hat{\underline{i}}_{q1}$$

$$K2: \quad \hat{\underline{u}}_{K1}\left(-\underline{y}_4 - \underline{y}_5\right) + \hat{\underline{u}}_{K2}\left(\underline{y}_2 + \underline{y}_4 + \underline{y}_5\right) = \hat{\underline{i}}_{q2}$$

$$\Longleftrightarrow \quad \begin{bmatrix} (\underline{y}_1 + \underline{y}_3 + \underline{y}_4 + \underline{y}_5) & (-\underline{y}_4 - \underline{y}_5) \\ (-\underline{y}_4 - \underline{y}_5) & (\underline{y}_2 + \underline{y}_4 + \underline{y}_5) \end{bmatrix} \begin{bmatrix} \hat{\underline{u}}_{K1} \\ \hat{\underline{u}}_{K2} \end{bmatrix} = \begin{bmatrix} \hat{\underline{i}}_{q1} \\ \hat{\underline{i}}_{q2} \end{bmatrix}$$

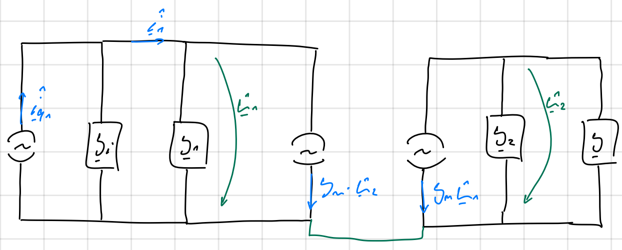
$\Longrightarrow$ TR :) $\longrightarrow$ $\hat{\underline{u}}_{K1} = \_\_\_$

$\hat{\underline{u}}_{K2} = \_\_\_$

$$\Longrightarrow \quad \hat{\underline{i}}_2 = \hat{\underline{u}}_{K2} \cdot \underline{y}_2 = \_\_\_$$

MLSZ_WÜ8 : Bsp 2

a)

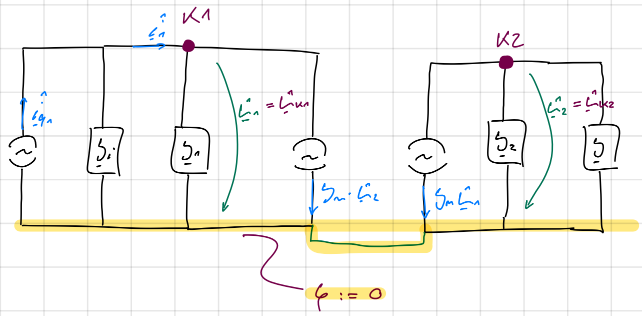


$$\underline{Y}_i = \frac{1}{\underline{Z}_i}$$

$$\underline{\hat{i}}_{q1} = \frac{\underline{\hat{u}}_{q1}}{\underline{Z}_i}$$

$$\underline{Y} = \frac{1}{\underline{Z}}$$

b)



$\longrightarrow$

$$K1: \quad -\underline{\hat{i}}_{q1} + (\underline{Y}_i + \underline{Y}_1)[\underline{\hat{u}}_{K1}] + \underline{Y}_m \underline{\hat{u}}_{K2} = 0$$

$$K2: \quad \underline{Y}_m \underline{\hat{u}}_{K1} + (\underline{Y}_2 + \underline{Y})[\underline{\hat{u}}_{K2}] = 0$$

$$\Longleftrightarrow \begin{bmatrix} (\underline{Y}_i + \underline{Y}_1) & \underline{Y}_m \\ \underline{Y}_m & (\underline{Y}_2 + \underline{Y}) \end{bmatrix} \begin{bmatrix} \underline{\hat{u}}_{K1} \\ \underline{\hat{u}}_{K2} \end{bmatrix} = \begin{bmatrix} \underline{\hat{i}}_{q1} \\ 0 \end{bmatrix}$$

$\Longrightarrow$ TR :)

$$\longrightarrow \underline{\hat{i}}_{q2} = \underline{\hat{u}}_{K2} \cdot \underline{Y} \quad \Longrightarrow \quad \ldots = \frac{\underline{Y}}{(\underline{Y}_i + \underline{Y}_1)(\underline{Y}_2 + \underline{Y}) - \underline{Y}_m^2} \cdot (-\underline{Y}_m) \cdot \underline{\hat{i}}_{q1} = \underline{\hat{i}}_2$$