$n = 6$
$w = 4$

$PPK : (w-1) = 3$

① $-\underline{I}_1 - \underline{I}_2 + \underline{I}_4 = 0$

② $\underline{I}_2 + \underline{I}_3 - \underline{I}_5 = 0$

③ $\underline{I}_1 - \underline{I}_3 - \underline{I}_6 = 0$

$NPK \quad (n - w + 1) = 3$

I) $\underline{Z}_1\underline{I}_1 - \underline{Z}_2\underline{I}_2 + \underline{Z}_3\underline{I}_3 = \underline{E}_1 + \underline{E}_3$

II) $\underline{Z}_2\underline{I}_2 + (\underline{Z}_5 + \underline{Z}_7)\underline{I}_5 + \underline{Z}_4\underline{I}_4 = \underline{E}_4$

III) $-\underline{Z}_3\underline{I}_3 + \underline{Z}_6\underline{I}_6 - (\underline{Z}_5 + \underline{Z}_7)\underline{I}_5 = \underline{E}_6 - \underline{E}_3$
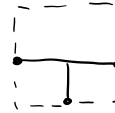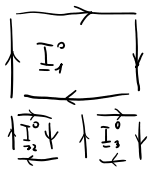
Prądy oczkowe:

$\underline{I}_1 = \underline{I}_1^{\circ}$

$\underline{I}_2 = \underline{I}_2^{\circ} - \underline{I}_1^{\circ}$

$\underline{I}_3 = \underline{I}_1^{\circ} - \underline{I}_3^{\circ}$

$\underline{I}_4 = \underline{I}_2^{\circ}$

$\underline{I}_5 = \underline{I}_2^{\circ} - \underline{I}_3^{\circ}$

$\underline{I}_6 = \underline{I}_3^{\circ}$

$(\underline{Z}_1 + \underline{Z}_2 + \underline{Z}_3)\underline{I}_1^{\circ} - \underline{Z}_2\underline{I}_2^{\circ} - \underline{Z}_3\underline{I}_3^{\circ} = \underline{E}_1 + \underline{E}_3$

$(\underline{Z}_2 + \underline{Z}_4 + \underline{Z}_5 + \underline{Z}_7)\underline{I}_2^{\circ} - \underline{Z}_2\underline{I}_1^{\circ} - (\underline{Z}_5 + \underline{Z}_7)\underline{I}_3^{\circ} = \underline{E}_4$

$(\underline{Z}_3 + \underline{Z}_5 + \underline{Z}_7 + \underline{Z}_6)\underline{I}_3^{\circ} - (\underline{Z}_5 + \underline{Z}_7)\underline{I}_2^{\circ} - \underline{Z}_3\underline{I}_1^{\circ} = -\underline{E}_3 + \underline{E}_6$

Potencjały węzłowe:

$\underline{I}_1 = \frac{1}{\underline{Z}_1}(\underline{V}_1 - \underline{V}_3 + \underline{E}_1)$

$\underline{I}_2 = \frac{1}{\underline{Z}_2}(\underline{V}_1 - \underline{V}_2)$

$\underline{I}_3 = \frac{1}{\underline{Z}_3}(\underline{V}_3 - \underline{V}_2 + \underline{E}_3)$

$\underline{I}_4 = \frac{1}{\underline{Z}_4}(-\underline{V}_1 + \underline{E}_4)$

$\underline{I}_5 = \frac{1}{\underline{Z}_5 + \underline{Z}_7}(\underline{V}_2)$

$\underline{I}_6 = \frac{1}{\underline{Z}_6}(\underline{V}_3 + \underline{E}_6)$

Admitancje

$(\underline{Y}_1 + \underline{Y}_2 + \underline{Y}_4)\underline{V}_1 - \underline{Y}_2\underline{V}_2 - \underline{Y}_1\underline{V}_3 = -\underline{Y}_1\underline{E}_1 + \underline{Y}_4\underline{E}_4$

$(\underline{Y}_2 - \underline{Y}_3 + \frac{1}{\underline{Z}_5 + \underline{Z}_7})\underline{V}_2 - \underline{Y}_2\underline{V}_1 - \underline{Y}_3\underline{V}_3 = \underline{Y}_3\underline{E}_3$

$(\underline{Y}_1 + \underline{Y}_3 + \underline{Y}_6)\underline{V}_3 - \underline{Y}_1\underline{V}_1 - \underline{Y}_3\underline{V}_2 = \underline{Y}_1\underline{E}_1 - \underline{Y}_3\underline{E}_3 - \underline{Y}_6\underline{E}_6$

ZADANIE → METODA THEVENINE'A
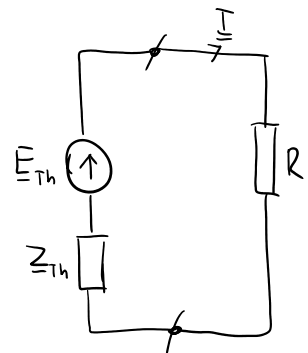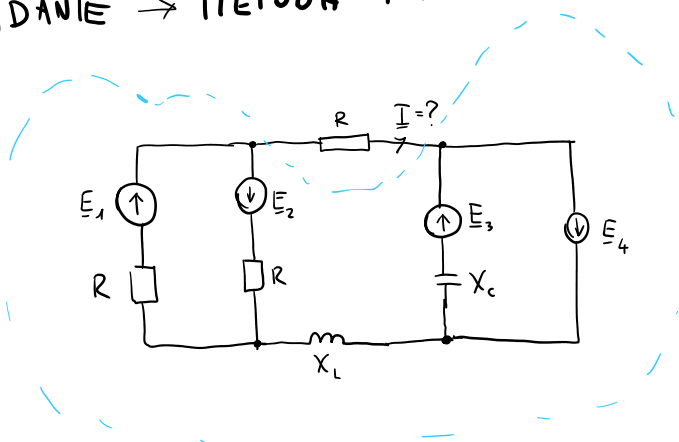
$\underline{I} = \frac{\underline{E}_{Th}}{\underline{Z}_{Th} + R}$
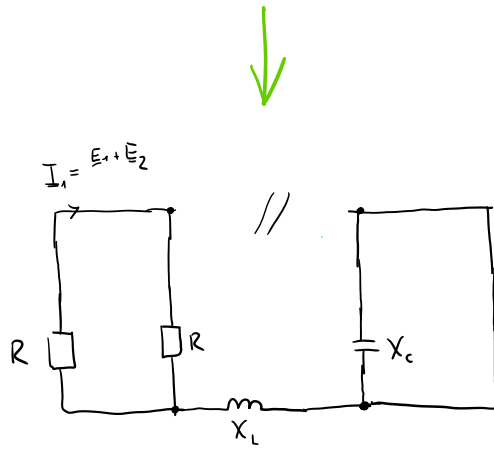
$$Z_{Th} = \frac{R \cdot R}{R+R} + j X_L = \frac{R}{2} + j X_L$$

$$E_{Th} = ?$$

$$I_1 = \frac{E_1 + E_2}{2R}$$

$$E_{Th} = ?$$

$$I_2 = \frac{E_3 + E_4}{-j X_c}$$
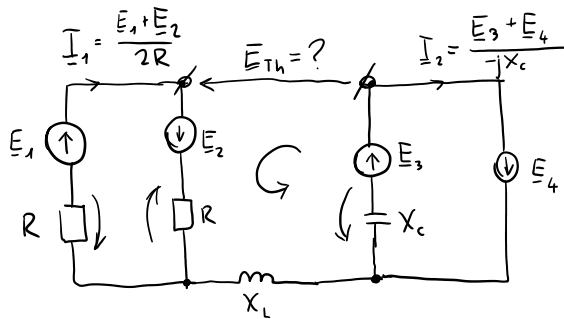
$$E_{Th} - E_1 + R I_1 - E_4 = 0$$

$$E_{th} - E_2 - R I_1 - (-j X_c I_2) + E_3 = 0$$

9.06 → kolos → Thevenine

└ nie będzie trójkątów i gwiazdek