

$$U_{ij} = U_i - U_j$$

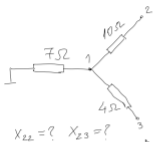
$$U_i = X_{ii} \cdot I - X_{ij} \cdot I$$

$$U_j = -X_{jj} \cdot I + X_{ij} \cdot I$$

$$U_{ij} = (X_{ii} + X_{jj} - 2X_{ij}) \cdot I$$

$$X_{ij, br.} = X_{ii} + X_{jj} - 2X_{ij}$$

$$X_{ij} = \frac{X_{ii} + X_{jj} - X_{ij, br.}}{2}$$

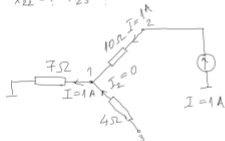


$$X_{22} = 7 + 10 = 17 \Omega$$

$$X_{33} = 7 + 4 = 11 \Omega$$

$$X_{23,6A} = 10 + 4 = 14 \Omega$$

$$X_{23} = \frac{X_{22} + X_{33} - X_{23,6A}}{2} = \frac{17 + 11 - 14}{2} = 7 \Omega$$



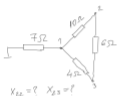
$$U_1 = 7 \cdot 1 = 7V$$

$$U_2 = U_1 + 10 \cdot 1 = 7 + 10 = 17V$$

$$U_3 = U_1 + 4 \cdot 0 = 7V$$

$$X_{22} = \frac{U_2}{I} = \frac{17}{1} = 17 \Omega$$

$$X_{23} = \frac{U_3}{I} = 7 \Omega$$



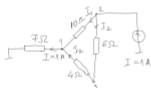
$$X_{22} = (6+4) \parallel 10 + 7 =$$

$$= 10 \parallel 10 + 7 = 5 + 7 = 12 \Omega$$

$$X_{33} = (10+6) \parallel 4 + 7 =$$

$$= 16 \parallel 4 + 7 = \frac{16 \cdot 4}{16+4} + 7 =$$

$$= \frac{64}{20} + 7 = 3,2 + 7 = 10,2 \Omega$$



$$X_{23, \text{ш}} = (10+4) \parallel 6 =$$

$$= 14 \parallel 6 = \frac{14 \cdot 6}{14+6} =$$

$$= \frac{84}{20} = 4,2 \Omega$$

$$X_{23} = \frac{X_{22} + X_{33} - X_{23, \text{ш}}}{2} =$$

$$= \frac{12 + 10,2 - 4,2}{2} = 9 \Omega$$

с помощью закона

$$I_1 = \frac{6+4}{10+(6+4)} \cdot 1 = 0,5 \text{ A}$$

$$I_2 = I - I_1 = 1 - 0,5 = 0,5 \text{ A}$$

$$U_1 = 7 \cdot 1 = 7 \text{ V}$$

$$U_2 = U_1 + 10 \cdot I_1 = 7 + 10 \cdot 0,5 = 12 \text{ V}$$

$$U_3 = U_1 + 4 \cdot I_2 = 7 + 4 \cdot 0,5 = 9 \text{ V}$$

$$X_{22} = \frac{U_2}{I} = \frac{12}{1} = 12 \Omega$$

$$X_{23} = \frac{U_3}{I} = 9 \Omega$$