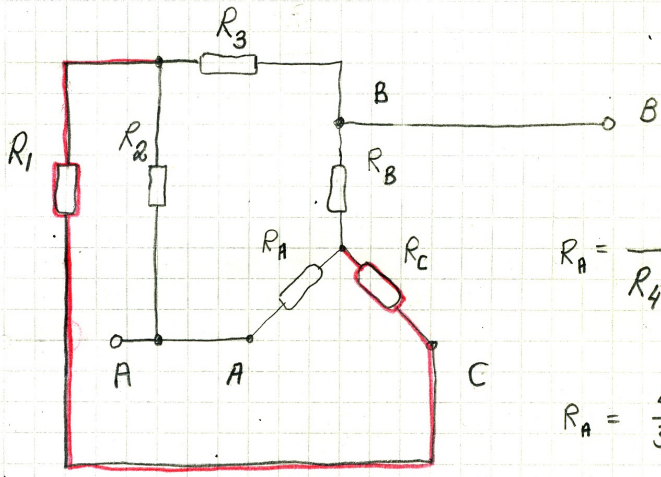
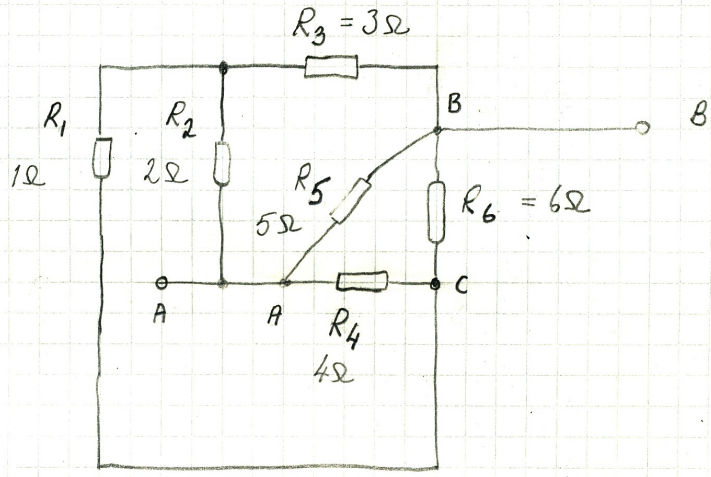


A4.2

BERAKNWA RAB

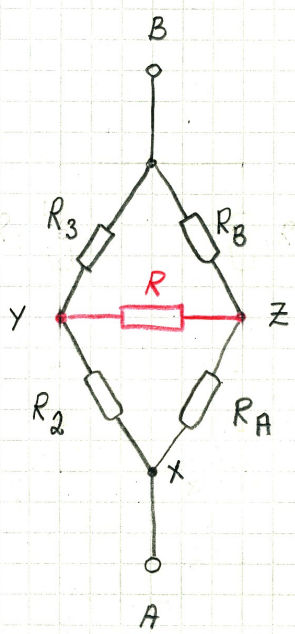


$$R_A = \frac{R_4 \cdot R_5}{R_4 + R_5 + R_6}$$

$$R_A = \frac{4}{3} \Omega \approx 1,33 \Omega$$

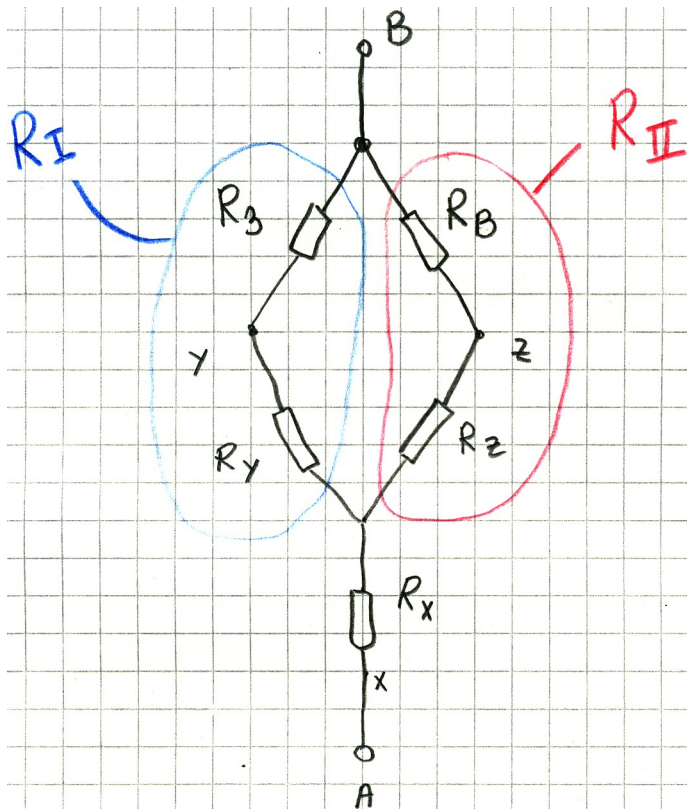
$$R_B = 2 \Omega$$

$$R_C = 1,6 \Omega$$



$$R = R_1 + R_C$$

$$R = 2,6 \Omega$$



$$R_x = \frac{R_A R_2}{R_A + R_2 + R}$$

$$R_x \approx 0.45 \Omega$$

$$R_y \approx 0.88 \Omega$$

$$R_z \approx 0.58 \Omega$$

$$R_1 = 3.88 \Omega$$

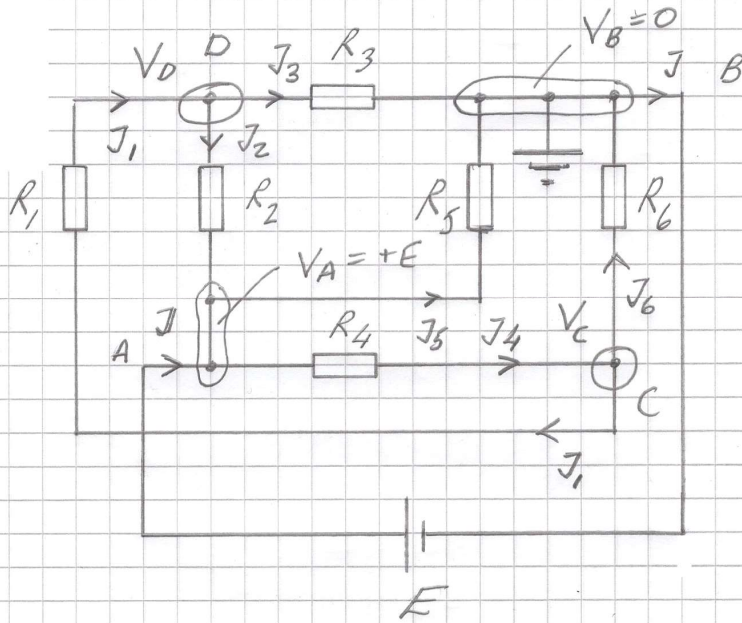
$$R_2 = 2.58 \Omega$$

$$R_{AB} = R_x + R_I // R_{II}$$

$$R_{AB} = 0.45 + \frac{3.88 \cdot 2.58}{3.88 + 2.58} \Omega \approx 2 \Omega$$

ALTERNATIV LÖSNING MED OHMS LAG

$$R_{AB} = \frac{E}{J} \dots (1) \quad \text{DÄR } J = J_3 + J_5 + J_6$$



VÄLJ E GODTYCKLIGT TILL EX. VIS
100 V OCH BERÄKNA J .

NODANALYS

$$\text{NOD C : } J_4 - J_1 - J_6 = 0 \dots (2)$$

$$\text{NOD D : } J_1 - J_2 - J_3 = 0 \dots (3)$$

$$\text{NOD C : } \frac{V_A - V_C}{R_4} - \frac{V_C - V_D}{R_1} - \frac{V_C - V_B}{R_6} = 0 \dots (2)$$

$$\text{NOD D : } \frac{V_C - V_D}{R_1} - \frac{V_D - V_A}{R_2} - \frac{V_D - V_B}{R_3} = 0 \dots (3)$$

$$\text{NOD C: } \frac{100 - V_C}{4} - \frac{V_C - V_D}{1} - \frac{V_C - 0}{6} = 0 \dots (2)$$

$$\text{NOD D: } \frac{V_C - V_D}{1} - \frac{V_D - 100}{2} - \frac{V_D - 0}{3} = 0 \dots (3)$$

$$300 - 3V_C - 12V_C + 12V_D - 2V_C - 0 = 0 \dots (2)$$

$$6V_C - 6V_D - 3V_D + 300 - 2V_D - 0 = 0 \dots (3)$$

$$-17V_C + 12V_D = -300 \dots (2)$$

$$6V_C - 11V_D = -300 \dots (3)$$

$$6 \cdot \text{EKV (1)} + 17 \cdot \text{EKV (2)} \Rightarrow$$

$$-102V_C + 72V_D + 102V_C - 187V_D = -1800 - 5100$$

$$\Rightarrow V_D = +60 \text{ V}$$

$$\text{INS (2)} \Rightarrow V_C = +60 \text{ V}$$

$$I_3 = \frac{V_D - V_B}{R_3} \Rightarrow I_3 = 20 \text{ A}$$

$$I_5 = \frac{V_A - V_B}{R_5} \Rightarrow I_5 = 20 \text{ A}$$

$$I_6 = \frac{V_C - V_B}{R_6} \Rightarrow I_6 = 10 \text{ A}$$

$$\Rightarrow I = 20 + 20 + 10 = 50 \text{ A (1)} \Rightarrow R_{AB} = \underline{2,0 \Omega}$$