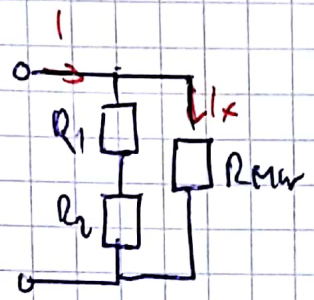
a) $P_{max} = 8mW = I_{MW}^2 \cdot R_{MW} \Rightarrow I_{MW} = \sqrt{\frac{P_{max}}{R_{MW}}} = \underline{\underline{8,944\,mA}}$

MB1:

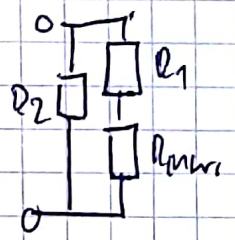


$$I_x = I \cdot \frac{R_1 + R_2}{R_1 + R_2 + R_{MW}}$$

$$\Rightarrow 8.944mA = 500mA \cdot \frac{R_1 + R_2}{R_1 + R_2 + 100\Omega}$$

$$\Rightarrow R_1 + R_2 = 1.821\Omega$$

MB2:



$$I_x = I \cdot \frac{R_2}{R_1 + R_2 + 100\Omega} = I \cdot \frac{R_2}{101.821\Omega}$$

$$\Rightarrow R_2 = \frac{8.944mA}{1500mA} \cdot 101.821\Omega = \underline{\underline{0,6\Omega}}$$

$$\underline{\underline{R_1 = 1.214\Omega}}$$ — Rundungsfehler ($\Sigma \neq 1.812\Omega$)

$P_{1,max}$: $I_{R_2 max} = 1500mA - 8.944mA = 1491.06mA$

$$\Rightarrow P_{1,max} = (1491.06mA)^2 \cdot R_1 = \underline{\underline{2.7W}}$$

$P_{2,max} = I_{R_1}$

b) $P_{2,max} = I_{2,max}^2 \cdot R_2 = (1.5A - 8.944mA)^2 \cdot 0.6\Omega = 1.334W$

$P_{1,max} = I_{1,max}^2 \cdot R_1$

$I_{1,max}$: $max\{8.944mA, 0.5A - 8.944mA\} = 0.5A - 8.944mA$

$\Rightarrow P_{1,max} = (0.5A - 8.944mA)^2 \cdot 1.214\Omega = 0.293W$

$U_{in} = I_{in} \cdot R_{in}$

$R_{in}(MB1) = (R_1 + R_2 \| R_{MW}) = 1.788\Omega$

$R_{in}(MB2) = (R_2 \| R_{MW} + R_1) = 0.596\Omega$

$\Rightarrow U_{in}(MB1) = 0.5 \cdot 1.788 = 0.894$

$U_{in}(MB2) = 1.5 \cdot 0.596 = 0.894$

$U_{max} = 0.894V$