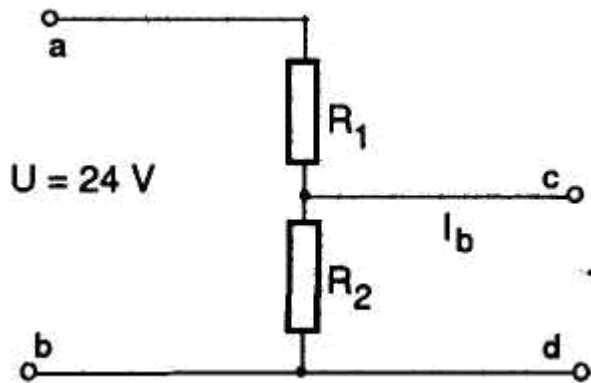


2.24 I den viste spændingsdeler skal modstandene  $R_1$  og  $R_2$  dimensioneres ud fra flg. krav:

- når belastningsstrømmen  $I_b = 0,4 \text{ A}$  skal  $U_{cd}$  være  $10 \text{ V}$ .
- når belastningsstrømmen  $I_b = 0,6 \text{ A}$  skal  $U_{cd}$  være  $8 \text{ V}$ .

Bestem  $R_1$  og  $R_2$



$$U_{ab} := 24 \cdot \text{V}$$

$$I_{b1} := 0,4 \cdot \text{A}$$

$$U_{cd1} := 10 \cdot \text{V}$$

$$I_{b2} := 0,6 \cdot \text{A}$$

$$U_{cd2} := 8 \cdot \text{V}$$

$$U_{R1} := U_{ab} - U_{cd1} \rightarrow 14 \cdot \text{V}$$

$$I_{R1} = \frac{U_{R1}}{R_1}$$

$$I_{R2} = I_{R1} - I_{b1} = \frac{U_{R1}}{R_1} - I_{b1}$$

$$R_2 = \frac{U_{cd1}}{I_{R2}}$$

$$R_2 = \frac{U_{cd1}}{\left( \frac{U_{R1}}{R_1} - I_{b1} \right)} \rightarrow R_2 = \frac{10 \cdot \text{V}}{-0,4 \cdot \text{A} + \frac{14 \cdot \text{V}}{R_1}}$$

$$U_{R12} := U_{ab} - U_{cd2} \rightarrow 16 \cdot V$$

$$I_{R12} = \frac{U_{R12}}{R_1}$$

$$I_{R22} = I_{R12} - I_{b2} = \frac{U_{R12}}{R_1} - I_{b2}$$

$$R_2 = \frac{U_{cd2}}{I_{R22}} = \frac{U_{R12}}{R_1} - I_{b2}$$

$$R_2 = \frac{U_{cd2}}{\left( \frac{U_{R12}}{R_1} - I_{b2} \right)} \rightarrow R_2 = \frac{8 \cdot V}{\frac{16 \cdot V}{R_1} + -0.6 \cdot A}$$

$$\frac{8 \cdot V}{\frac{16 \cdot V}{R_1} + -0.6 \cdot A} = \frac{10 \cdot V}{-0.4 \cdot A + \frac{14 \cdot V}{R_1}} \text{ solve, } R_1 \rightarrow \left( \begin{array}{c} 17.142857142857142857 \cdot V \\ A^{1.0} \\ 0 \end{array} \right)$$

$$R_1 := \frac{17.142857142857142857 \cdot V}{A^{1.0}}$$

$$R_2 := \frac{U_{cd1}}{\left( \frac{U_{R1}}{R_1} - I_{b1} \right)}$$

$$R_2 = 24 \Omega$$