

3.

$$U_g = 230 \text{ V}$$

$$R_1 = 15 \text{ } \Omega$$

$$\underline{R_2 = 8 \text{ } \Omega}$$

$$I = 10 \text{ A}$$

$$U_1 = 150 \text{ V}$$

$$U_2 = 80 \text{ V}$$

$$R_g = R_1 + R_2$$

$$\underline{R_g = 23 \text{ } \Omega}$$

$$U_1 = I * R_1$$

$$\underline{U_1 = 150 \text{ V}}$$

$$I = \frac{U}{R}$$

$$\underline{I = 10 \text{ A}}$$

$$U_2 = I * R_2$$

$$\underline{U_2 = 80 \text{ V}}$$

4.

$$I = 1,5 \text{ A}$$

$$R_1 = 120 \text{ } \Omega$$

$$\underline{R_2 = 20 \text{ } \Omega}$$

$$U_1 = 180 \text{ V}$$

$$U_2 = 30 \text{ V}$$

$$U_g = 210 \text{ V}$$

$$U_1 = I * R_1$$

$$\underline{U_1 = 180 \text{ V}}$$

$$U_g = I * R_g$$

$$\underline{U_g = 210 \text{ V}}$$

$$U_2 = I * R_2$$

$$\underline{U_2 = 30 \text{ V}}$$

5.

$$I = 850 \text{ mA} \rightarrow 0,85 \text{ A}$$

$$U_g = 125 \text{ V}$$

$$\underline{U_2 = 85 \text{ V}}$$

$$R_1 = 47,06 \text{ } \Omega$$

$$R_2 = 100 \text{ } \Omega$$

$$R_2 = \frac{U_2}{I}$$

$$\underline{R_2 = 100 \text{ } \Omega}$$

$$R_1 = \frac{U_1}{I}$$

$$\underline{R_1 = 47,06 \text{ } \Omega}$$

$$U_1 = U_g - U_2$$

$$\underline{U_1 = 40 \text{ V}}$$

6.

$$R_1 = 15 \text{ } \Omega$$

$$R_2 = 32 \text{ } \Omega$$

$$R_3 = 26 \text{ } \Omega$$

$$\underline{U_g = 230 \text{ V}}$$

$$R_g = 73 \text{ } \Omega$$

$$U_1 = 47,25 \text{ V}$$

$$U_2 = 100,8 \text{ V}$$

$$U_3 = 81,9 \text{ V}$$

$$I = 3,15 \text{ A}$$

$$R_g = R_1 + R_2 + R_3$$

$$\underline{R_g = 73 \text{ } \Omega}$$

$$I = \frac{U_g}{R_g}$$

$$\underline{I = 3,15 \text{ A}}$$

$$U = I * R$$

$$\underline{U_1 = 47,25 \text{ V}}$$

$$\underline{U_2 = 100,8 \text{ V}}$$

$$\underline{U_3 = 81,9 \text{ V}}$$

7.

$$R_1 = 12 \Omega$$

$$R_g = R_1 + R_2 + R_3$$

$$R_2 = 7 \Omega$$

$$\underline{R_g = 25 \Omega}$$

$$\underline{R_3 = 6 \Omega}$$

$$R_g = 25 \Omega$$

8.

$$U_g = 230 \text{ V}$$

$$R_g = \frac{U_g}{I}$$

$$\underline{I = 4 \text{ A}}$$

$$\underline{\underline{R_g = 57,5 \Omega}}$$

$$R_g = 57,5 \Omega$$

9.

$$R_1 = 15 \Omega$$

$$R_g = R_1 + R_2 + R_3$$

$$R_2 = 25 \Omega$$

$$\underline{R_g = 120 \Omega}$$

$$R_3 = 80 \Omega$$

$$I = \frac{U_g}{R_g}$$

$$\underline{U_g = 60 \text{ V}}$$

$$\underline{I = 0,5 \text{ A}}$$

$$I = 0,5 \text{ A}$$

10.

Der Widerstand R_2 sei so eingestellt, dass er den gleichen Ohmwert hat wie R_1 :

$$U_1 = 40 \text{ V}$$

$$U_2 = 40 \text{ V}$$

Wie verändern sich die elektrischen Werte, wenn R_2 größer gestellt wird?

R_g wird **größer**

U_1 wird **kleiner**

I **bleibt gleich**

U_2 wird **größer**

Wie verändern sich die elektrischen Werte, wenn R_2 kleiner gestellt wird?

R_g wird **kleiner**

U_1 wird **größer**

I **bleibt gleich**

U_2 wird **kleiner**

Wie groß sind die Spannungen, wenn R_2 auf Null gestellt wird?

$$U_1 = 80 \text{ V}$$

$$U_2 = 0 \text{ V}$$

11.

$$U_g = 230 \text{ V}$$

$$R_g = \frac{U_g}{I}$$

$$I = 0,5 \text{ A}$$

$$R_g = 460 \text{ } \Omega$$

$$R_1 = 160 \text{ } \Omega$$

$$R_2 = R_g - R_1 - R_3$$

$$R_3 = 40 \text{ } \Omega$$

$$R_2 = 260 \text{ } \Omega$$

$$R_2 = 260 \text{ } \Omega$$

12.

$$I = 2 \text{ A}$$

$$U_1 = I * R_1$$

$$U_g = U_1 + U_2$$

$$R_1 = 10 \text{ } \Omega$$

$$U_1 = 20 \text{ V}$$

$$U_g = 220 \text{ V}$$

$$R_2 = 100 \text{ } \Omega$$

$$U_2 = 200 \text{ V}$$

$$U_1 = 20 \text{ V}$$

$$\frac{U_1}{U_2} = \frac{R_1}{R_2}$$

$$U_2 = 200 \text{ V}$$

$$\frac{20}{200} = \frac{10}{R_2}$$

$$U_3 = 220 \text{ V}$$

$$0,1 = 0,1$$

13.

$$U_g = 200 \text{ V}$$

$$R_g = \frac{U_g}{I}$$

$$I = 0,5 \text{ A}$$

$$R_g = 400 \text{ } \Omega$$

$$R_1 = 166 \text{ } \Omega$$

$$R_2 = R_g - R_1 - R_3$$

$$R_3 = 40 \text{ } \Omega$$

$$R_2 = 200 \text{ } \Omega$$

$$R_g = 200 \text{ } \Omega$$

14.

$$U_1 = 17 \text{ V}$$

$$U_g = U_1 + U_2$$

$$U_2 = 63 \text{ V}$$

$$U_g = 80 \text{ V}$$

$$I = 0,3 \text{ A}$$

$$R_1 = \frac{U_1}{I}$$

$$U_g = 80 \text{ V}$$

$$R_1 = 56,67 \text{ } \Omega$$

$$R_g = R_1 + R_2$$

$$R_1 = 56,67 \text{ } \Omega$$

$$R_2 = 210 \text{ } \Omega$$

$$R_g = 266,67 \text{ } \Omega$$

$$R_2 = 210 \text{ } \Omega$$

$$R_g = 266,67 \text{ } \Omega$$

15.

$$U_g = 165 \text{ V}$$

$$R_g = \frac{U_g}{I}$$

$$U_1 = U_2 = U_3$$

$$I = 650 \text{ mA} \rightarrow 0,650 \text{ A}$$

$$\underline{R_g = 253,85 \Omega}$$

$$U_1 = \frac{U_g}{3}$$

$$\underline{R_1 = R_2 = R_3}$$

$$R_1 = R_2 = R_3$$

$$\underline{U_1 = 55 \text{ V}}$$

$$U_1 = U_2 = U_3 = 55 \text{ V}$$

$$R_1 = \frac{R_g}{3}$$

$$U_1 = R_2 = R_3 = 84,62 \Omega$$

$$\underline{R_1 = 84,62 \Omega}$$

16.Stufe 1: R_1

$$I = \frac{U_g}{R_g}$$

$$\underline{9,2 \text{ A}}$$

Stufe 2: R_2

$$I = \frac{U_g}{R_g}$$

$$\underline{6,57 \text{ A}}$$

Stufe 3: $R_1 + R_2$

$$I = \frac{U_g}{R_g}$$

$$\underline{3,83 \text{ A}}$$

$$R_1 = 25 \Omega$$

$$R_2 = 35 \Omega$$

$$\underline{U_g = 230 \text{ V}}$$

$$I_1 = 9,2 \text{ A}$$

$$I_2 = 6,57 \text{ A}$$

$$I_3 = 3,83 \text{ A}$$