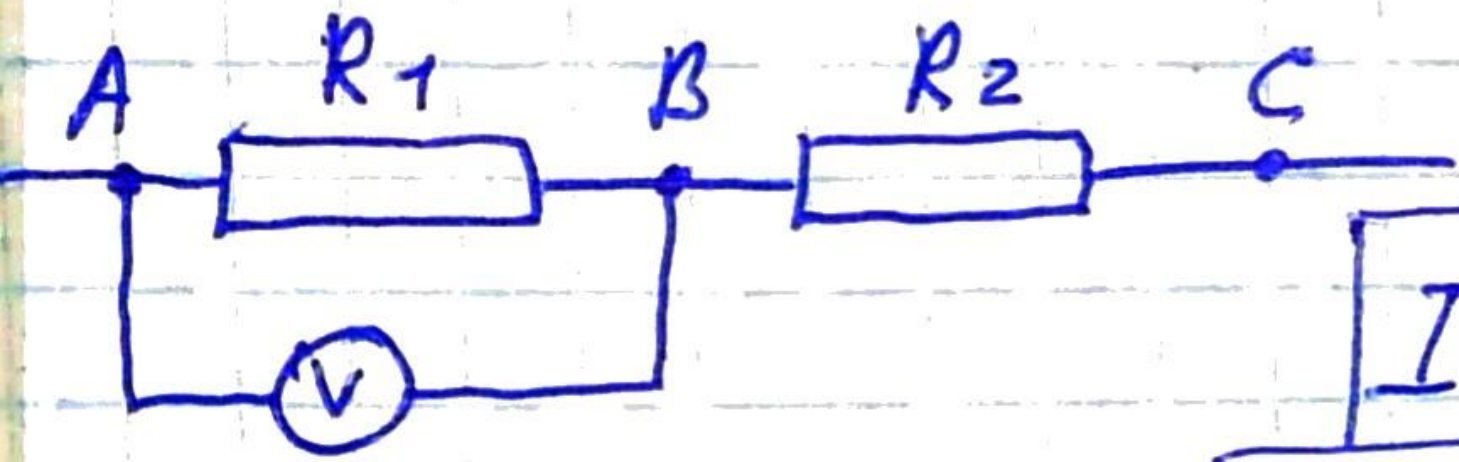


# §102 Последовательное и параллельное соединения проводников

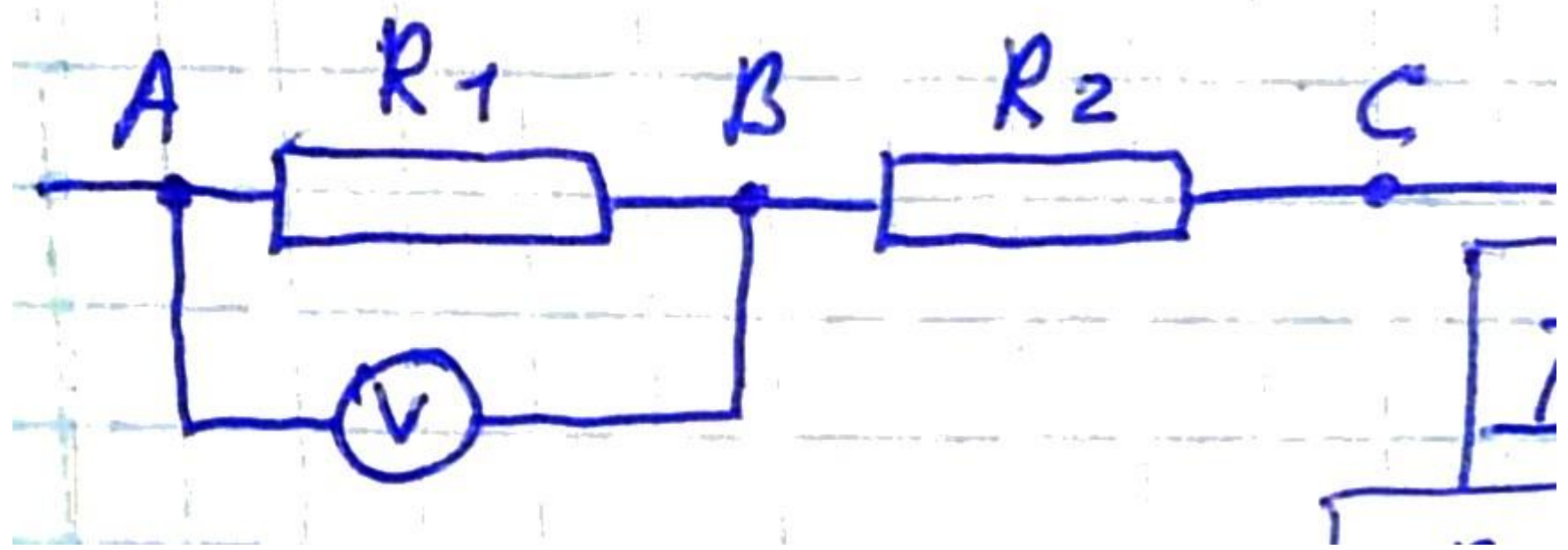
1) §102 + А2, А3 стр. 334 +  $\rightarrow$  776  
780

expression



$$I_1 = I_2 = I$$

$$R = R_1 + R_2 = R_{AC}$$



$$U_1 = IR_1, \quad U_2 = IR_2$$

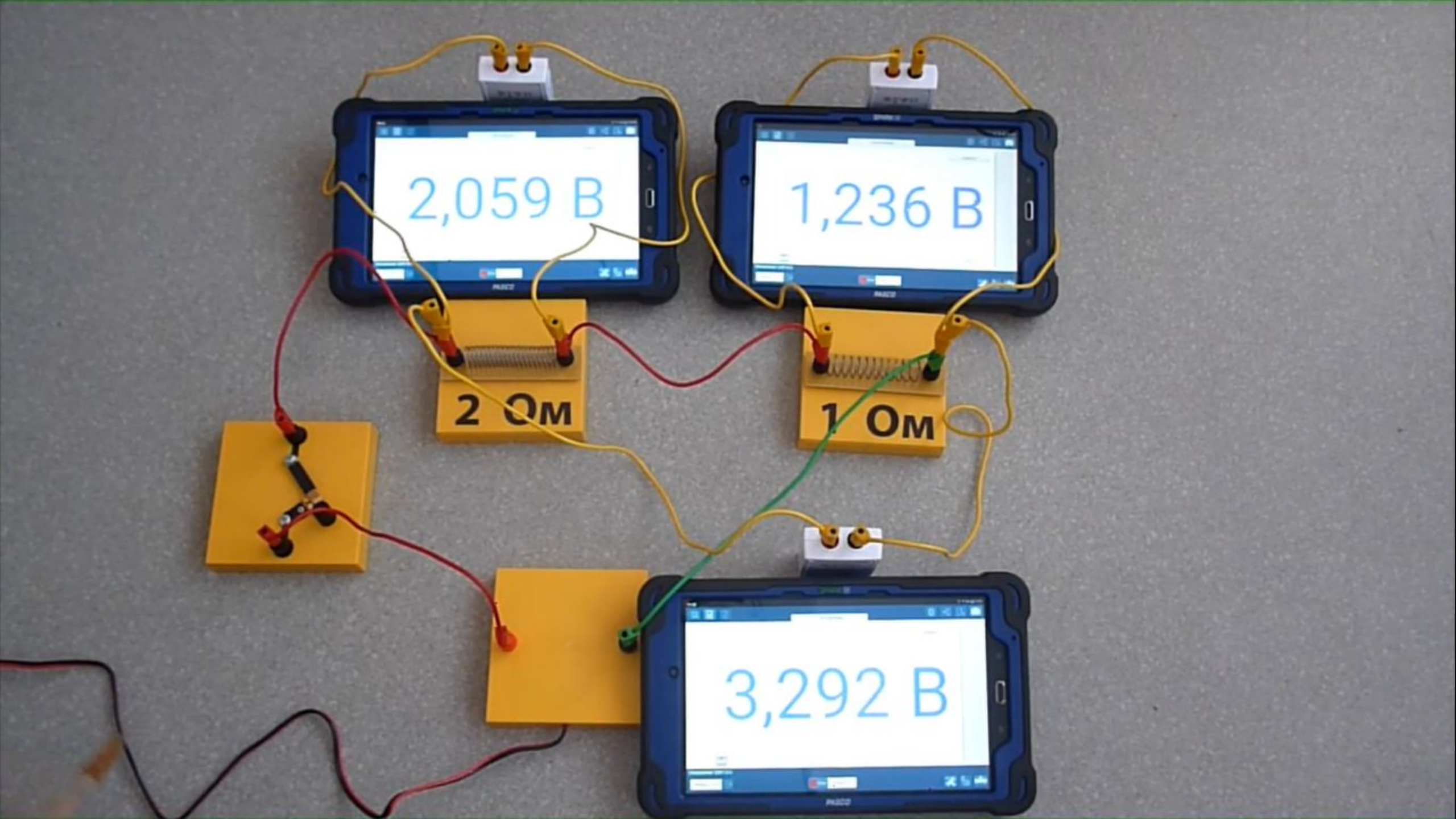
$\Rightarrow$  чем больше  $R$ , тем больше  $U$ !

$$U_{AC} = U = U_1 + U_2$$

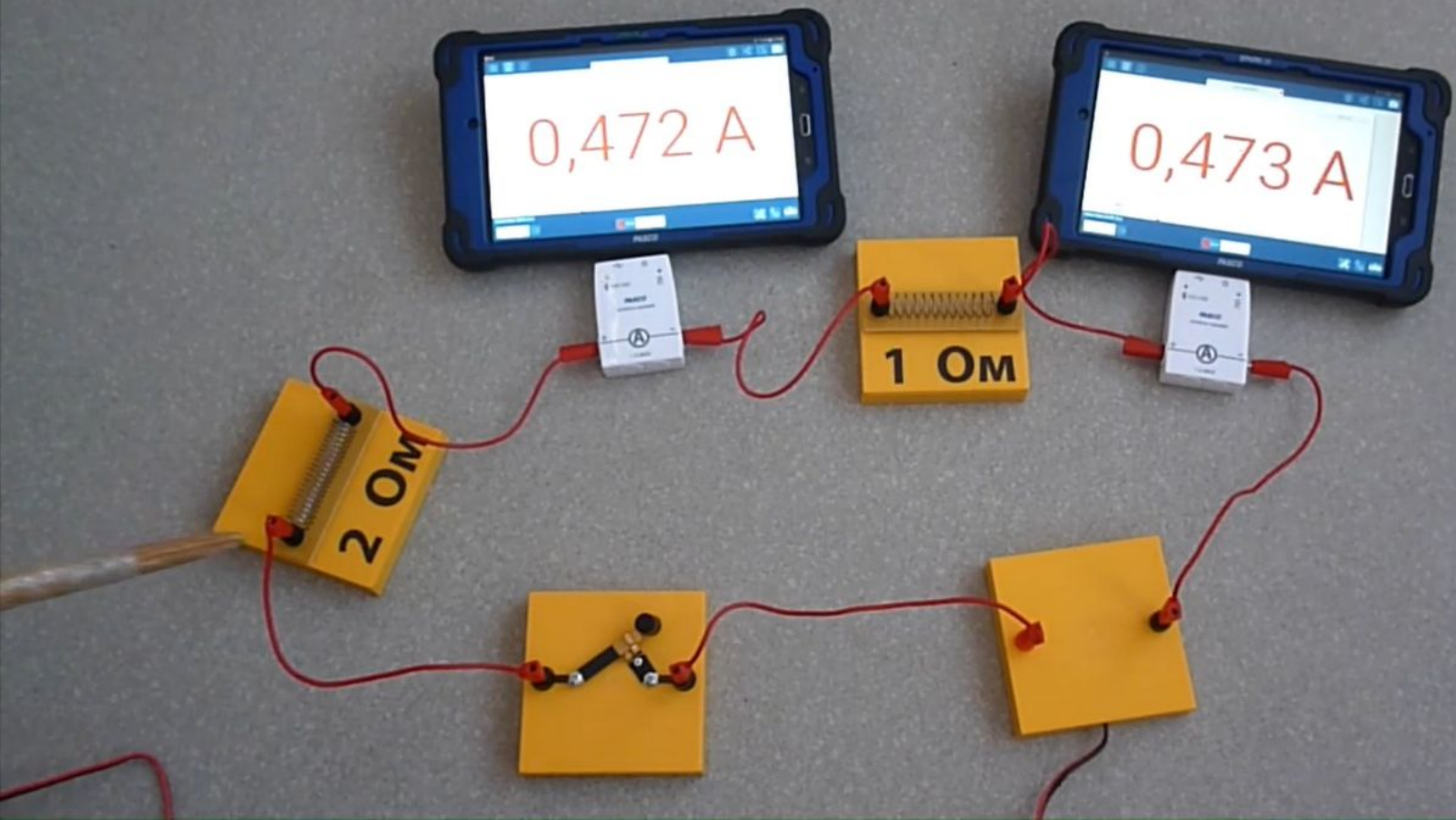
$$U_{AC} = U_{AB} + U_{BC}$$

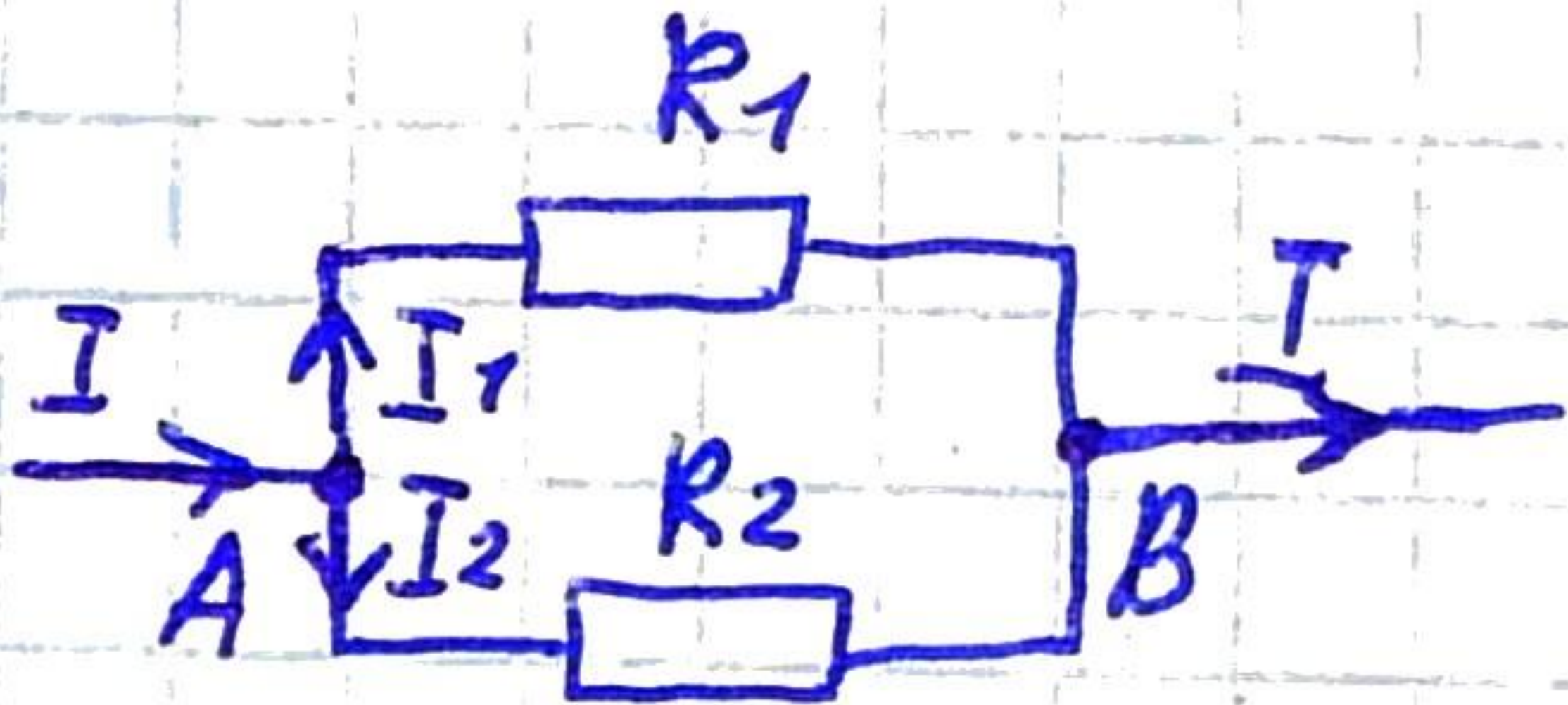
$$\frac{U_1}{U_2} = \frac{R_1}{R_2}$$





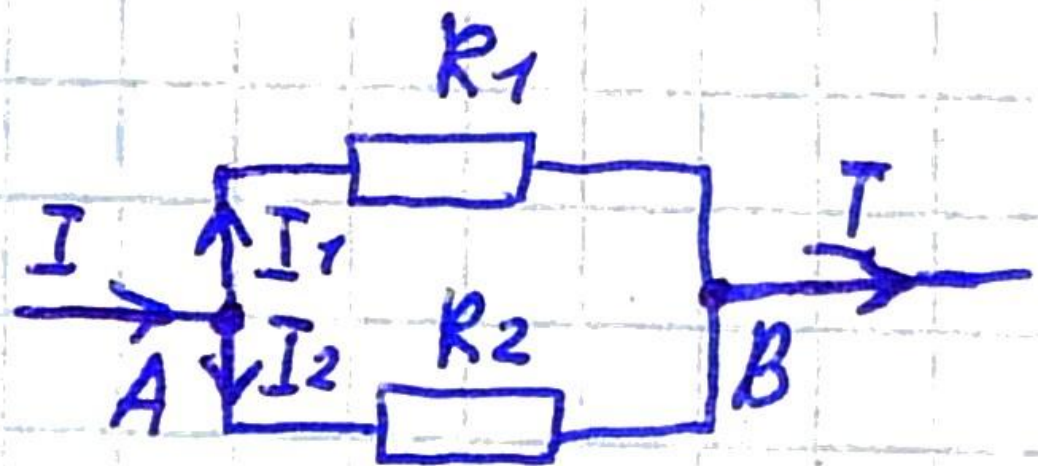






$$U = U_1 = U_2$$

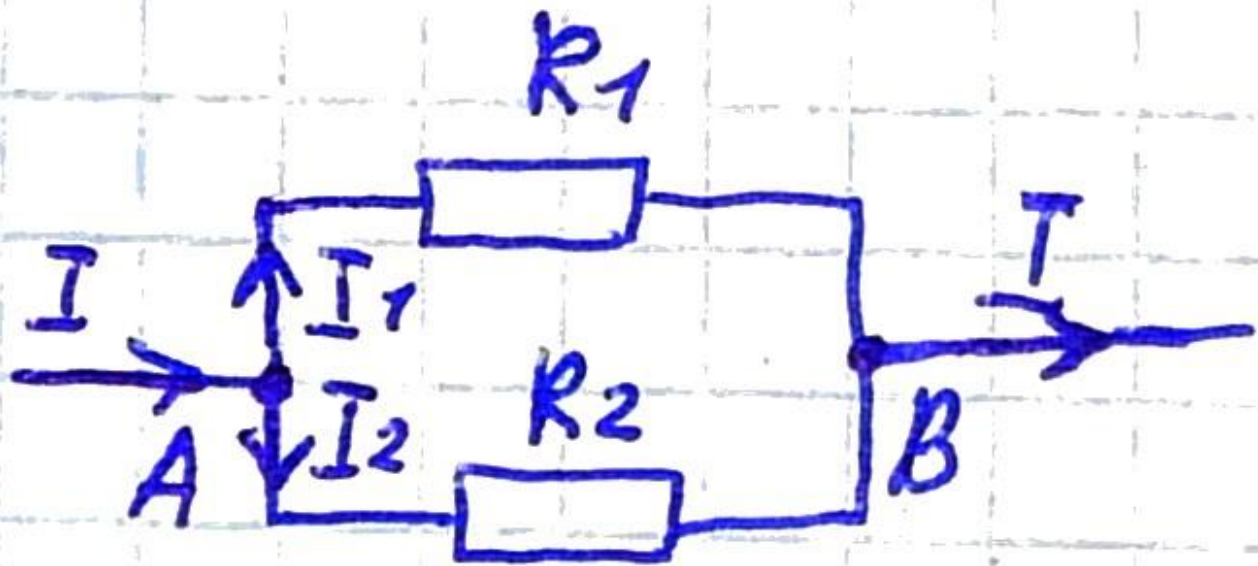
$$I = I_1 + I_2$$





$$I_1 = \frac{U}{R_1}, \quad I_2 = \frac{U}{R_2}$$

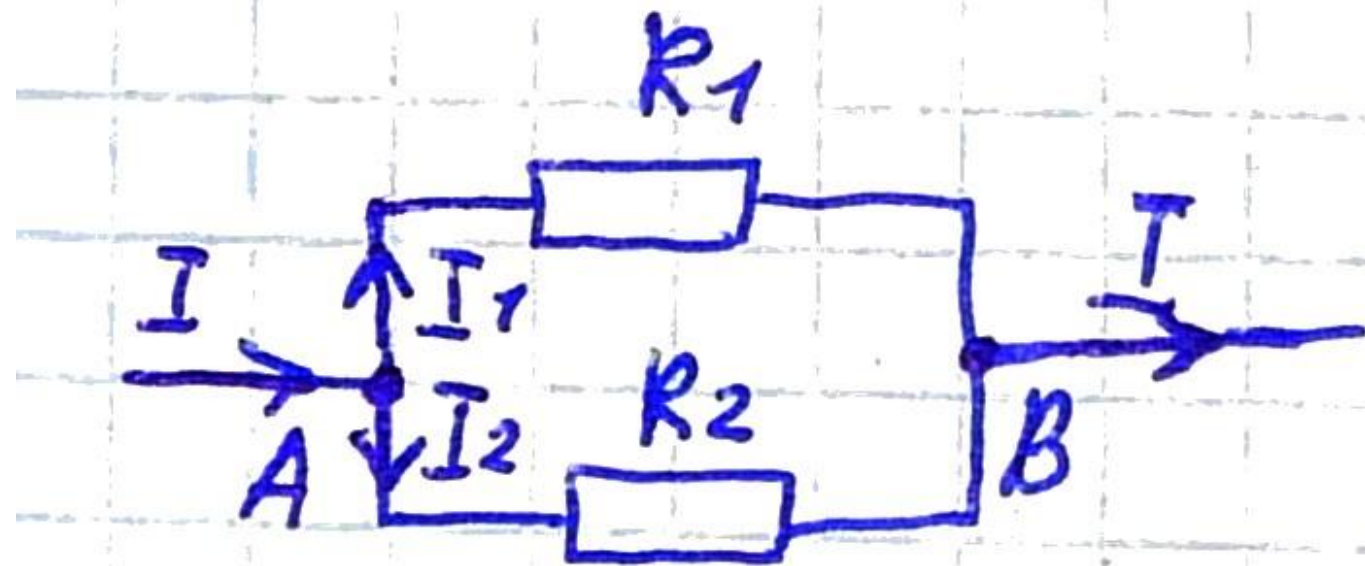
чем меньше сопротивление  
ветви, тем больше ток по ней





$$I_1 = \frac{U}{R_1}, \quad I_2 = \frac{U}{R_2}$$

если  $R_1 = R_2$ , то  $I_1 = I_2 = \frac{I}{2}$



$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} + \dots$$

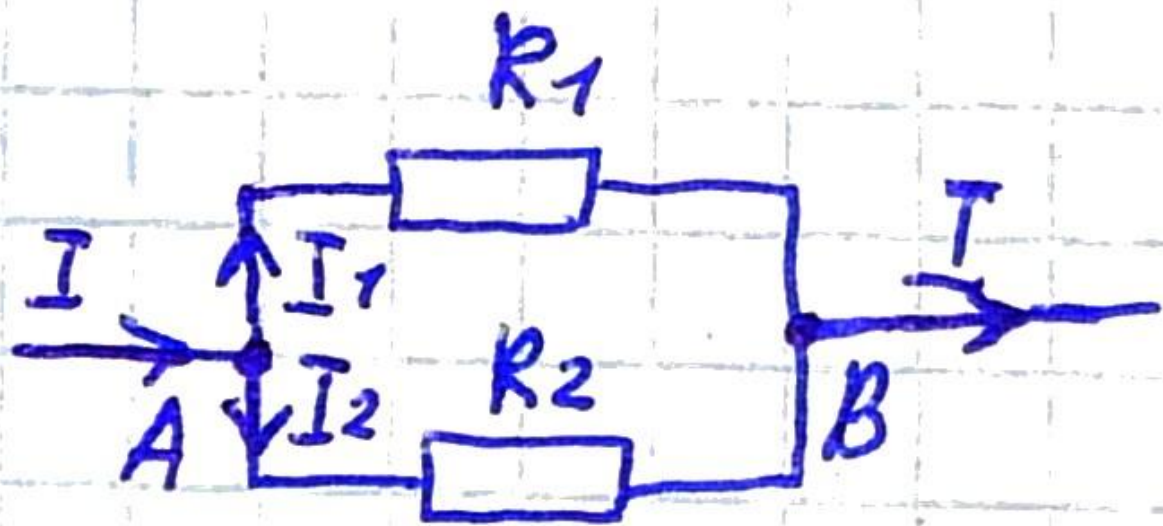
конформное преобразование при

$$\frac{1}{R} = \frac{R_2 + R_1}{R_1 R_2}$$

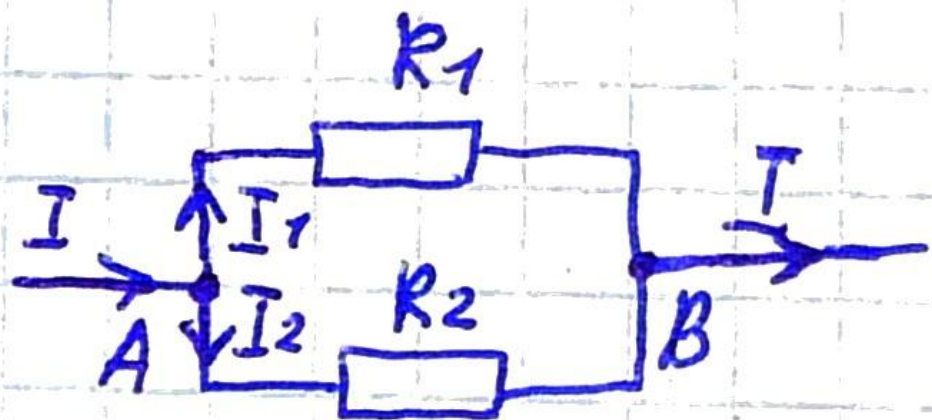
)

$$R = \frac{R_1 \cdot R_2}{R_1 + R_2}$$

глыx  
npod-x







$$R = \frac{R_1 \cdot R_2}{R_1 + R_2}$$

глы  
нрэд

есм  $R_1 = R_2$ , то

$$R = \frac{R_1}{2}$$

есм  $R_1 = R_2 = R_3$ , то  $R = \frac{R_1}{3}$

есм  $R_1 = R_2 = \dots = R_n$ ,  $R = \frac{R_1}{n}$

0,156 A

2,38



0,468 A

0,310 A

1,14





0,380 B

2,38

1,14

0,005 B

0,385 B





0,492 B

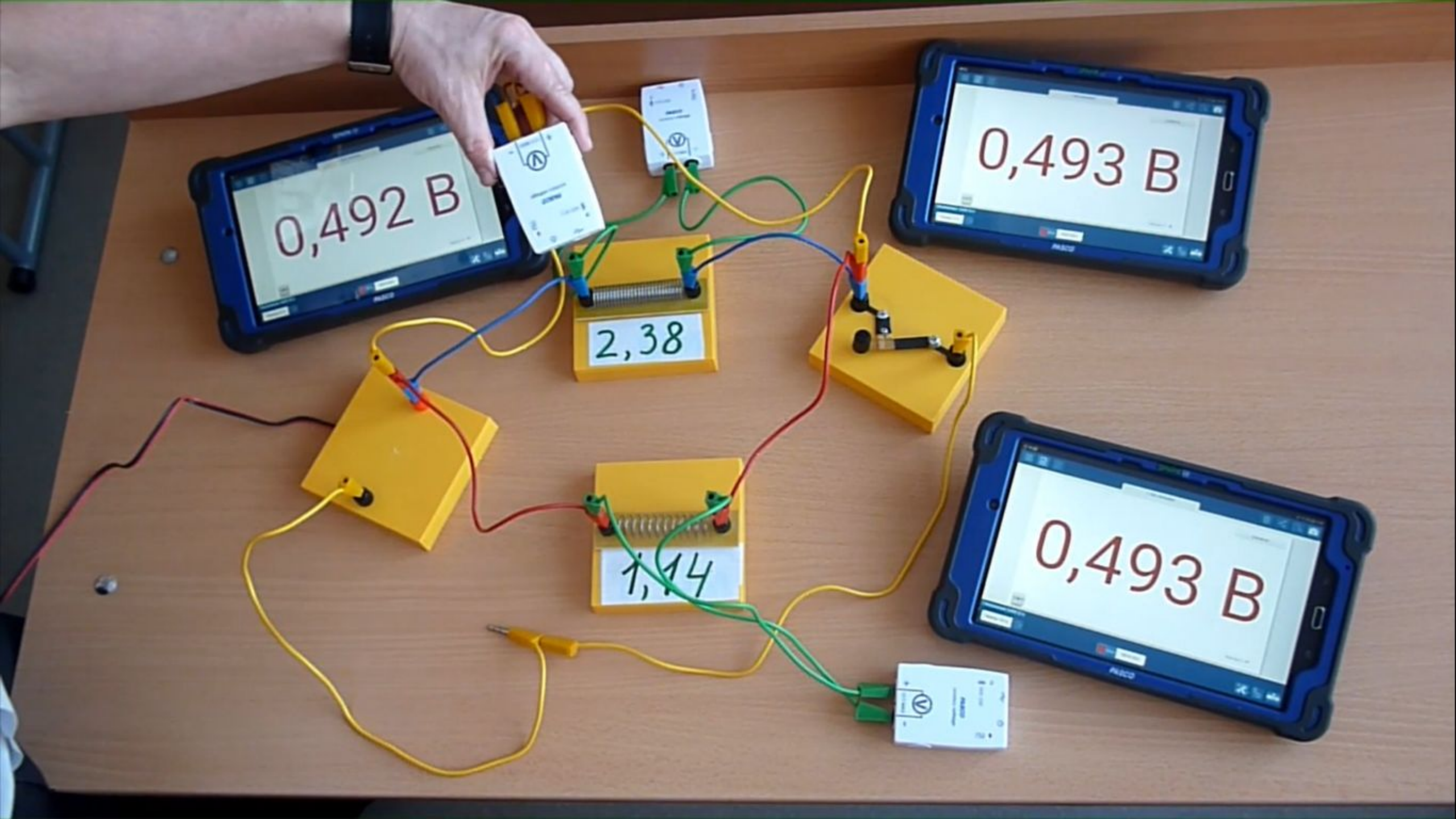
0,493 B

2,38



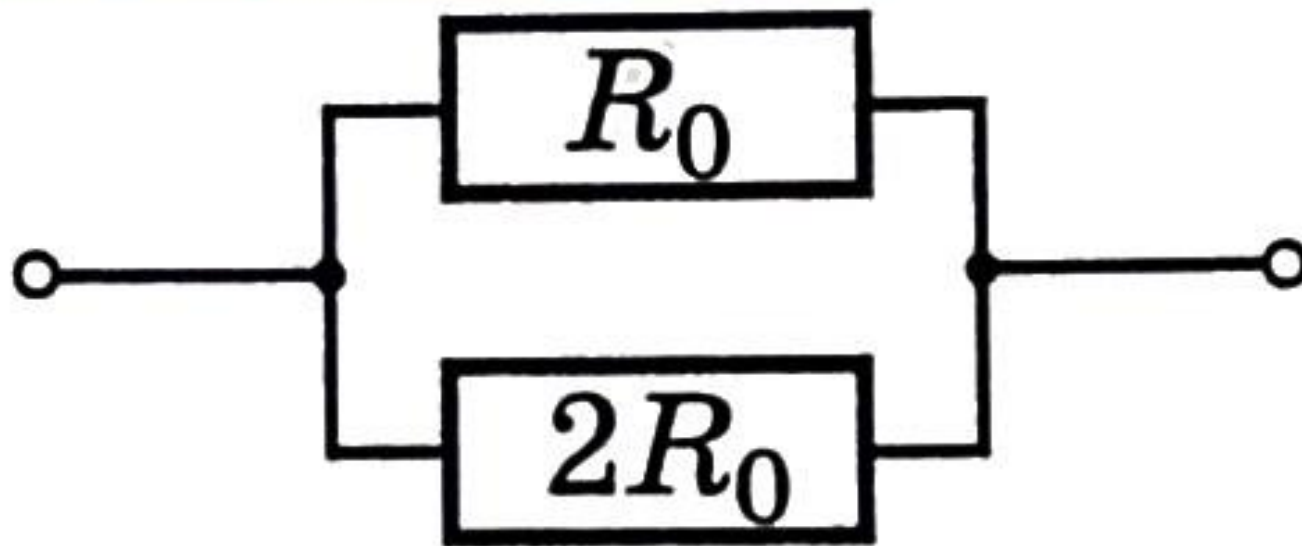
1,14

0,493 B

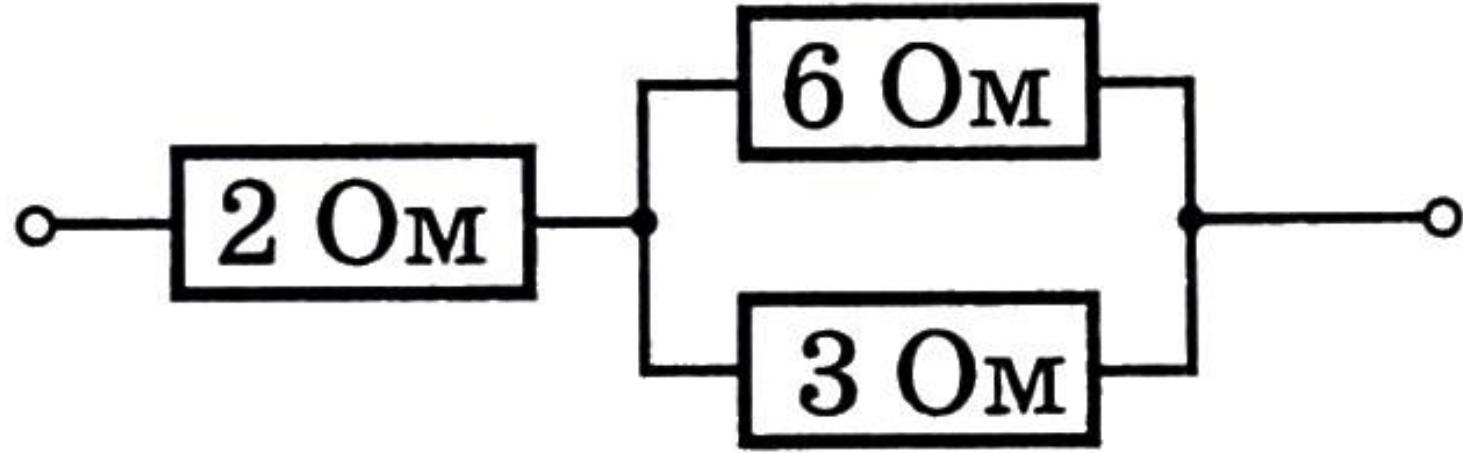




A1

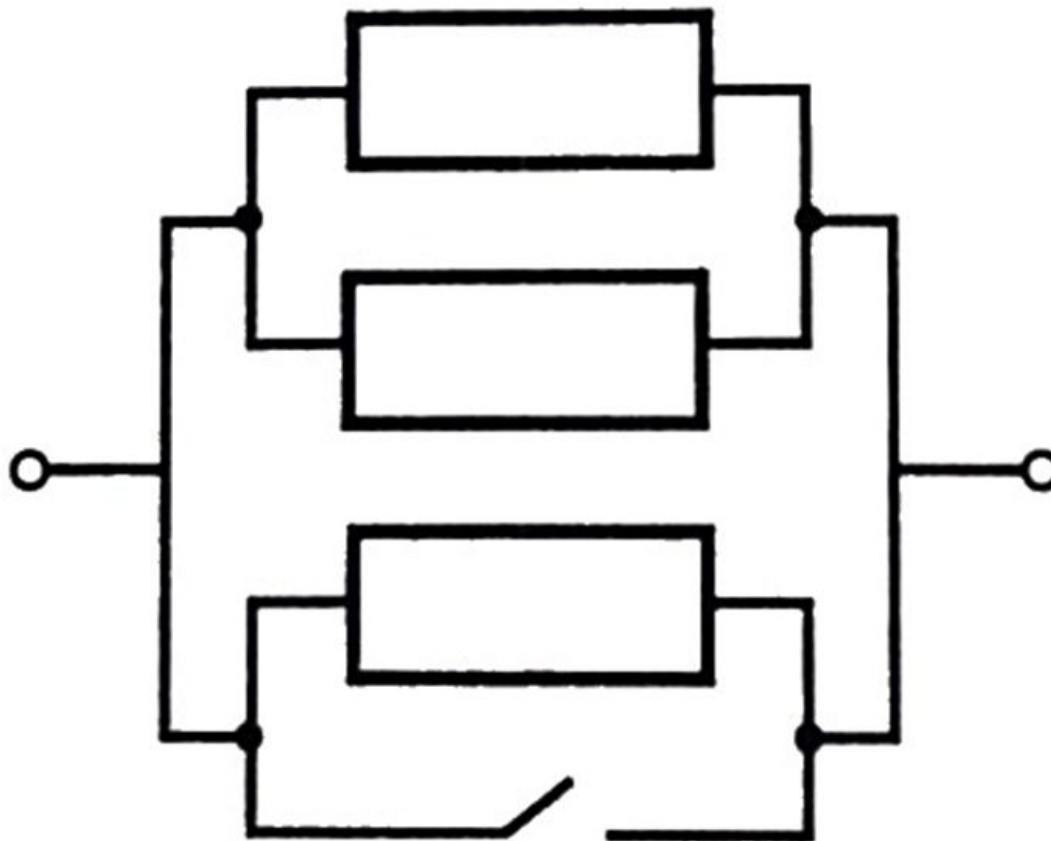
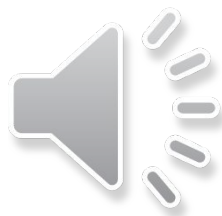


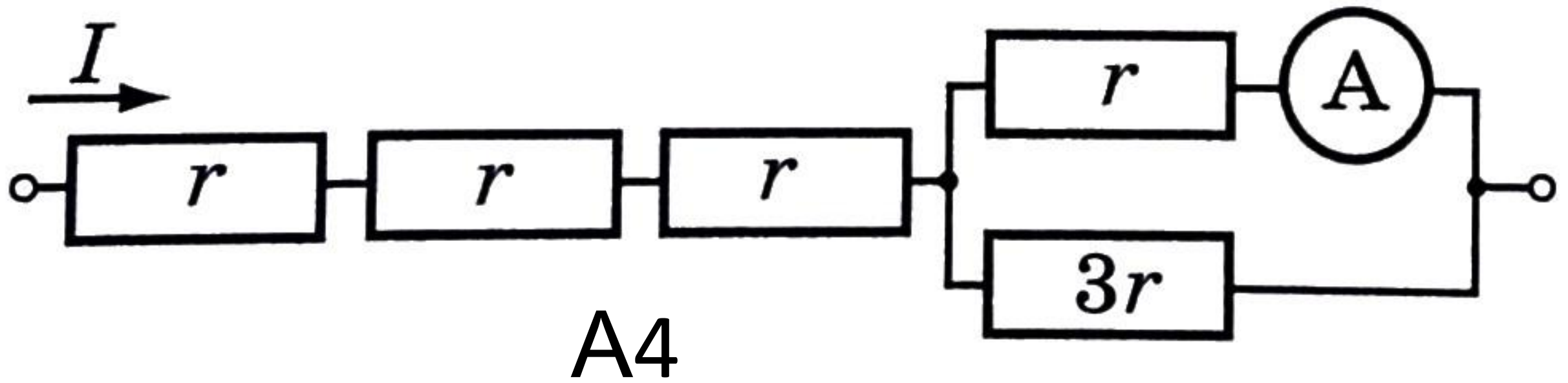
A2



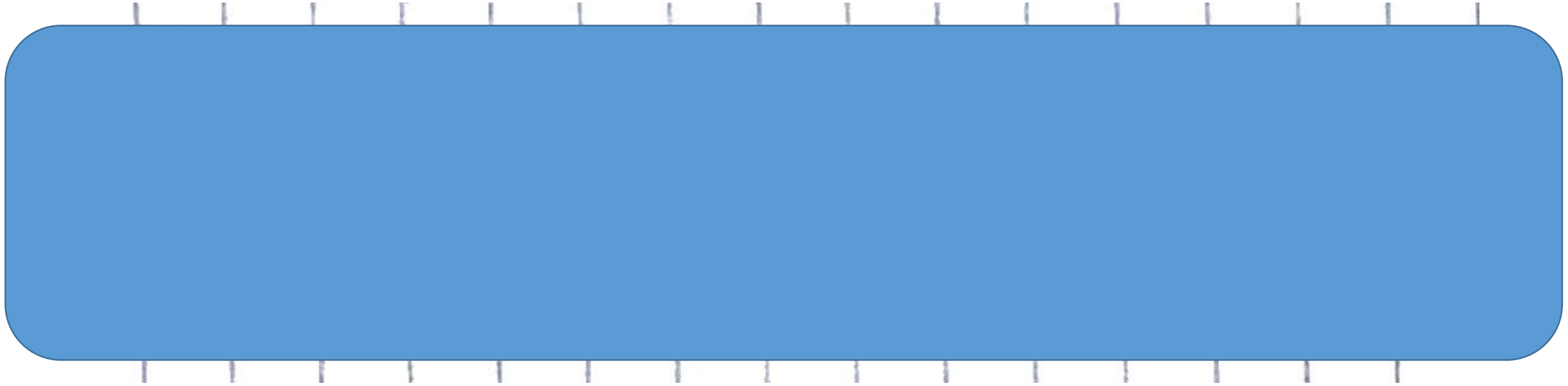


A3

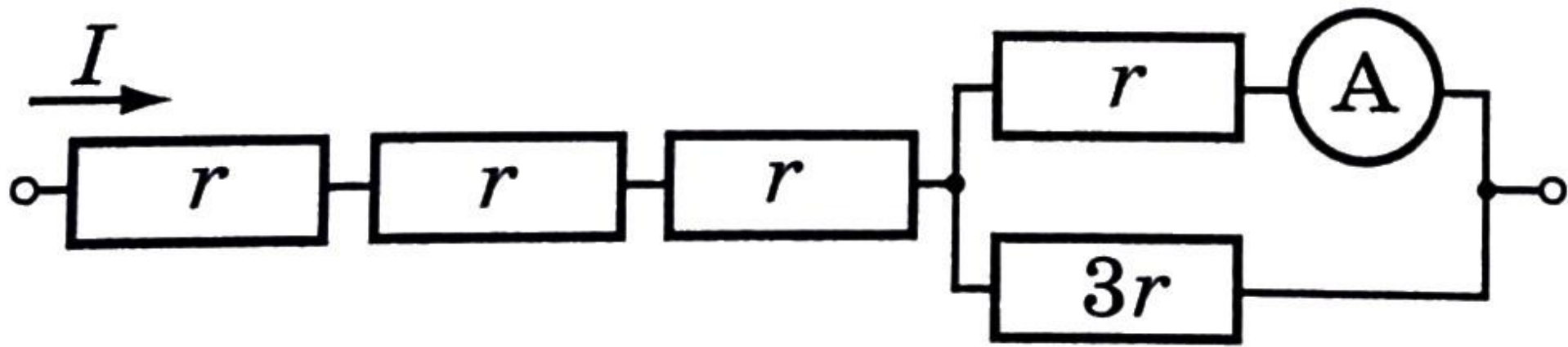




A4







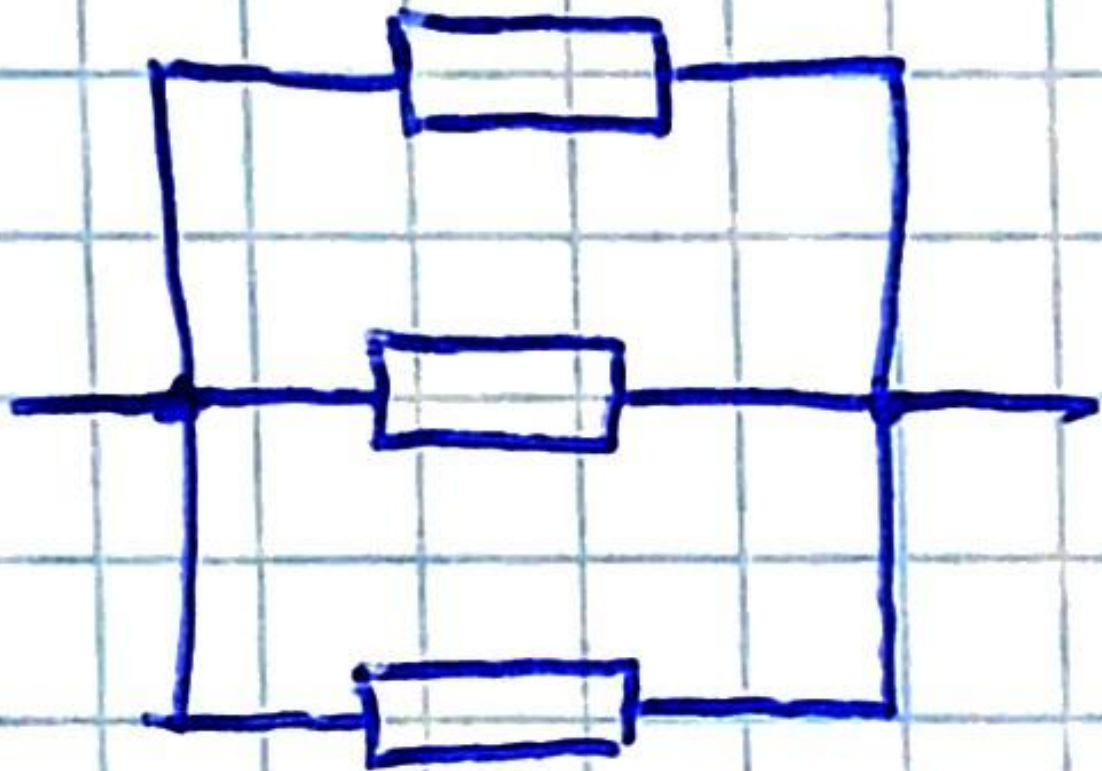
$$\begin{cases} I_1 = 3I_2 \\ I_1 + I_2 = 8 \end{cases} \quad \begin{cases} I_2 = 8 - I_1 \\ I_1 = 3 \cdot (8 - I_1) \end{cases}$$

Какие можно получить  
значения сопротивлений,  
соединяя всеми  
возможными способами три  
резистора, если  
сопротивление каждого  
равно 6 Ом?

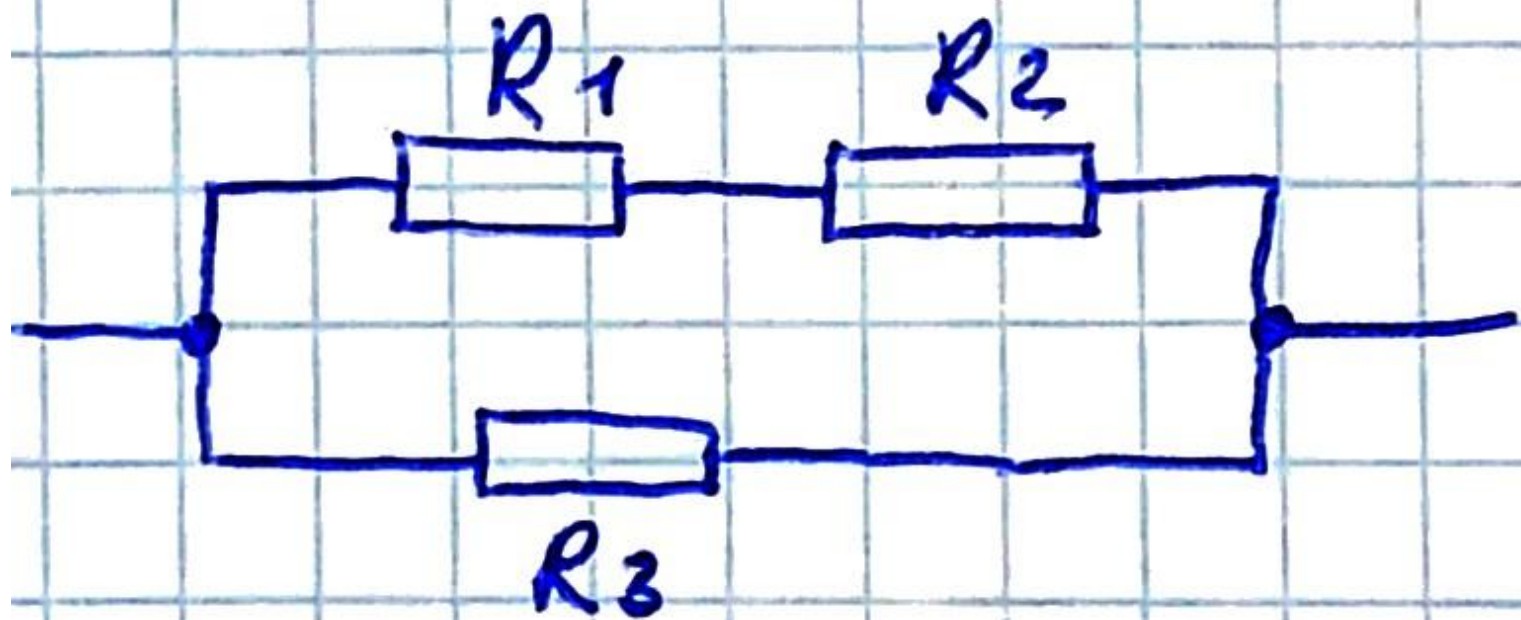




$$R = R_1 \cdot 3 = 6 \cdot 3 = 18 \text{ Ohm}$$



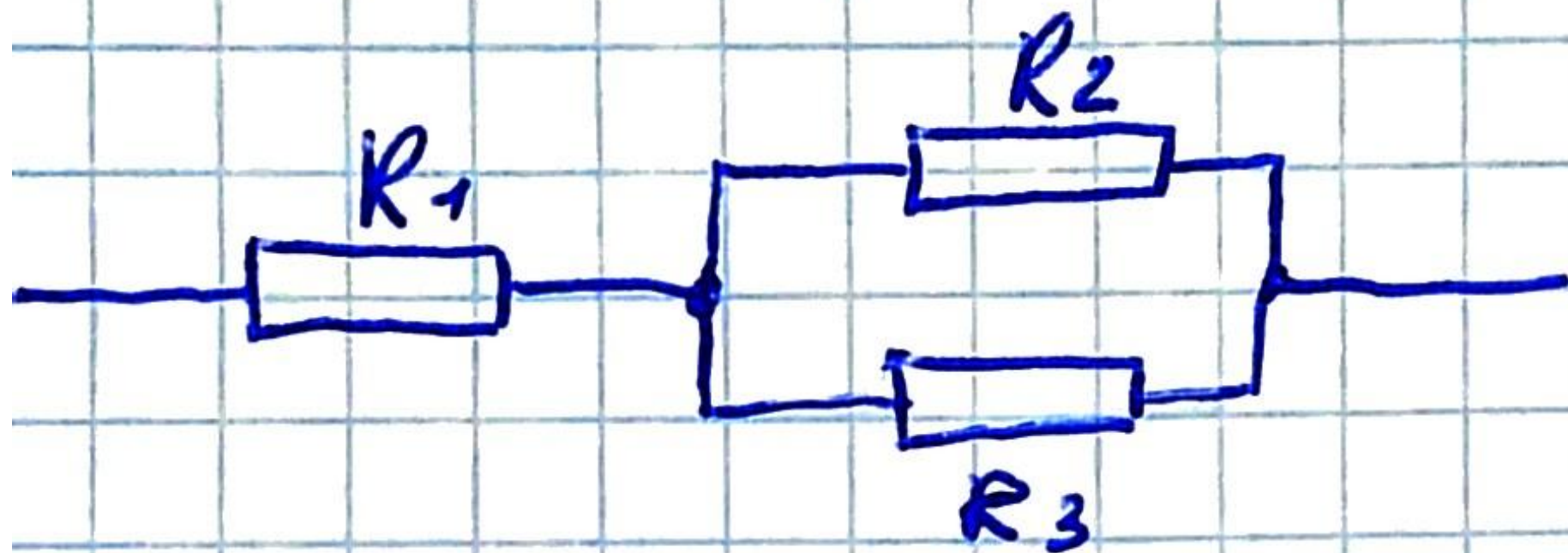
$$R = \frac{R_1}{3} =$$
$$= \frac{6}{3} = 2 \text{ Ohm}$$



$$R_{1,2} = 2 R_1 = 12 \text{ } \Omega$$

$$R = \frac{R_{1,2} \cdot R_3}{R_{1,2} + R_3} = \frac{12 \cdot 6}{12 + 6} = 4 \text{ } \Omega$$





$$R = R_1 + R_{2,3} = R_1 + \frac{R_2}{2} =$$

$$= 6 + \frac{6}{2} = 9 \text{ OM}$$