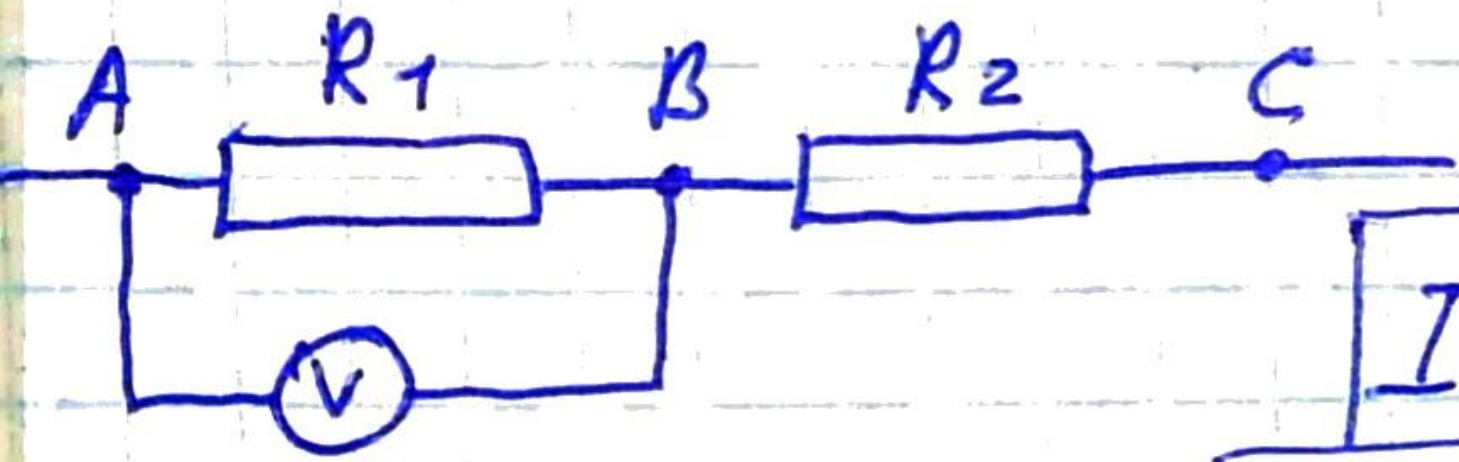


§102 Последовательное и параллельное соединения проводников

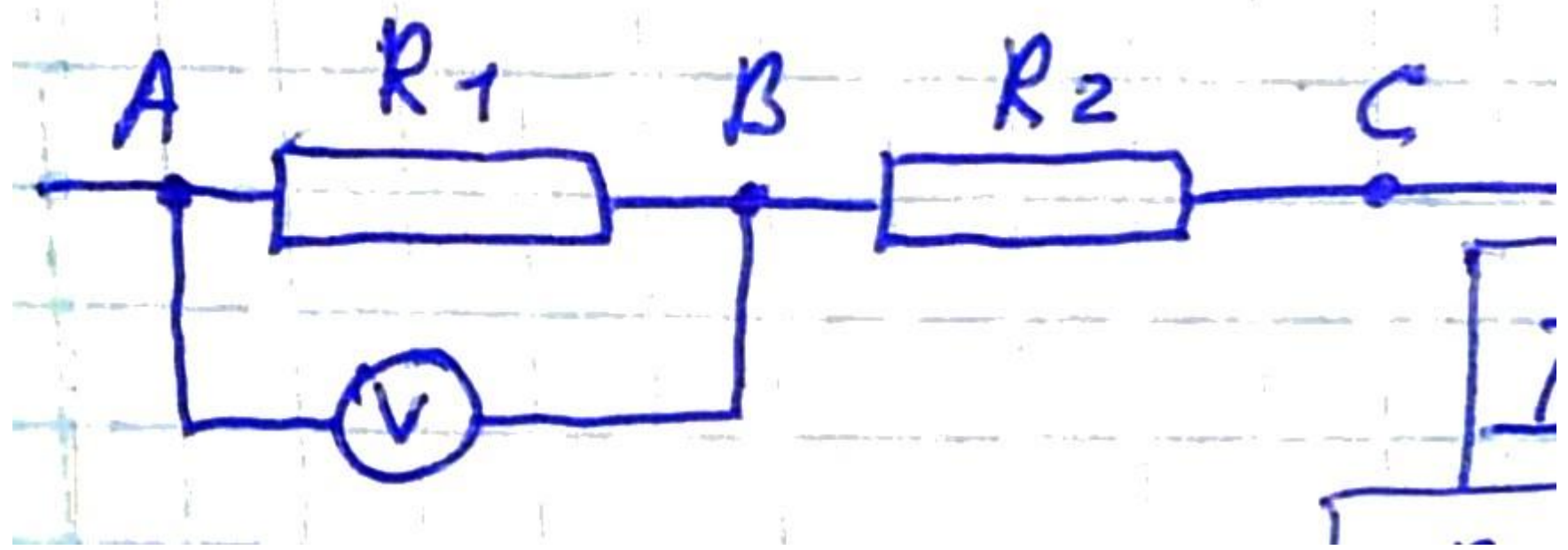
1) § 102 + А2, А3 стр. 334 + 776
780

expression 1



$$I_1 = I_2 = I$$

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



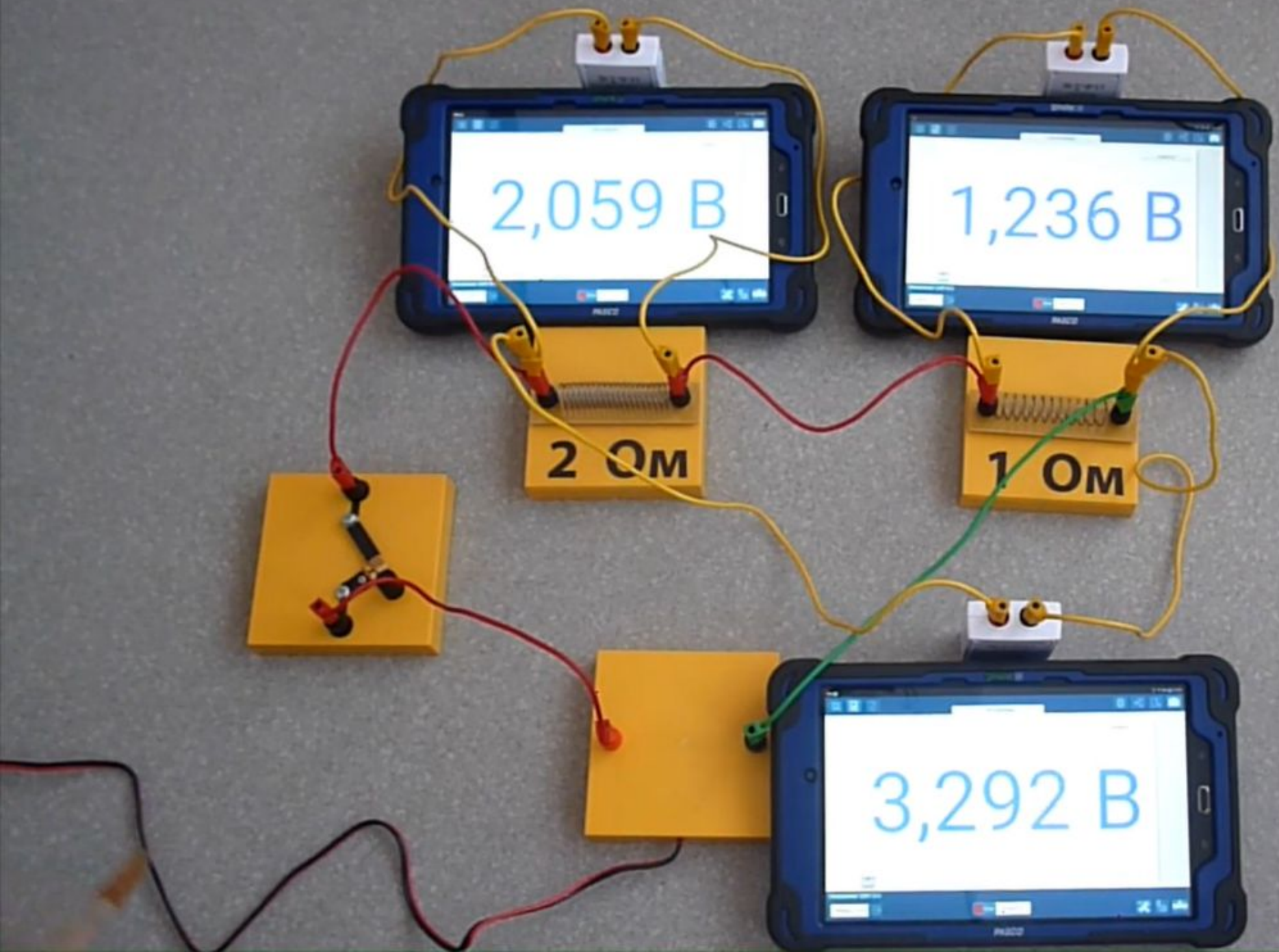
$$U_1 = IR_1, \quad U_2 = IR_2$$

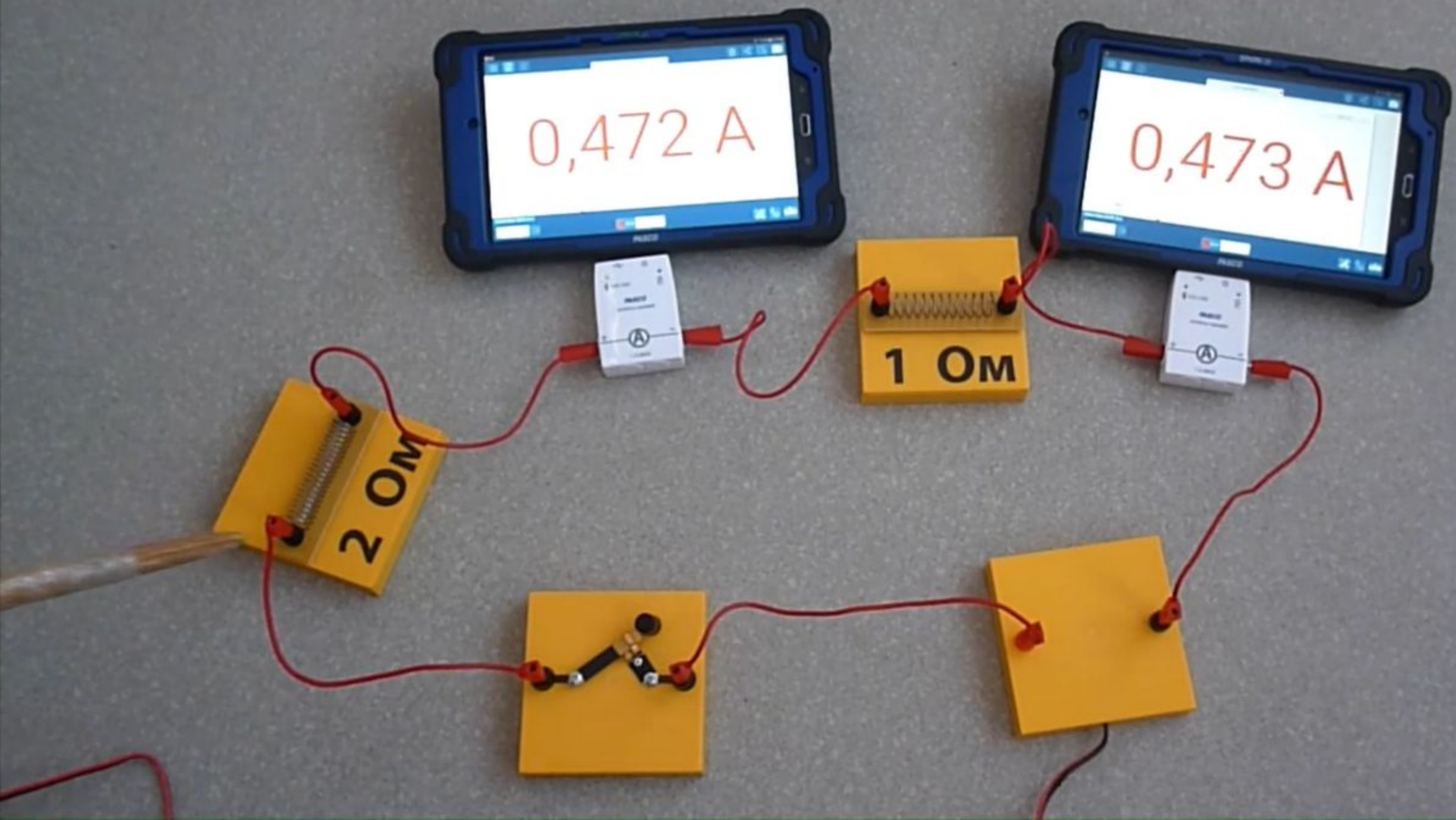
⇒ сум больше R, сум больше U!

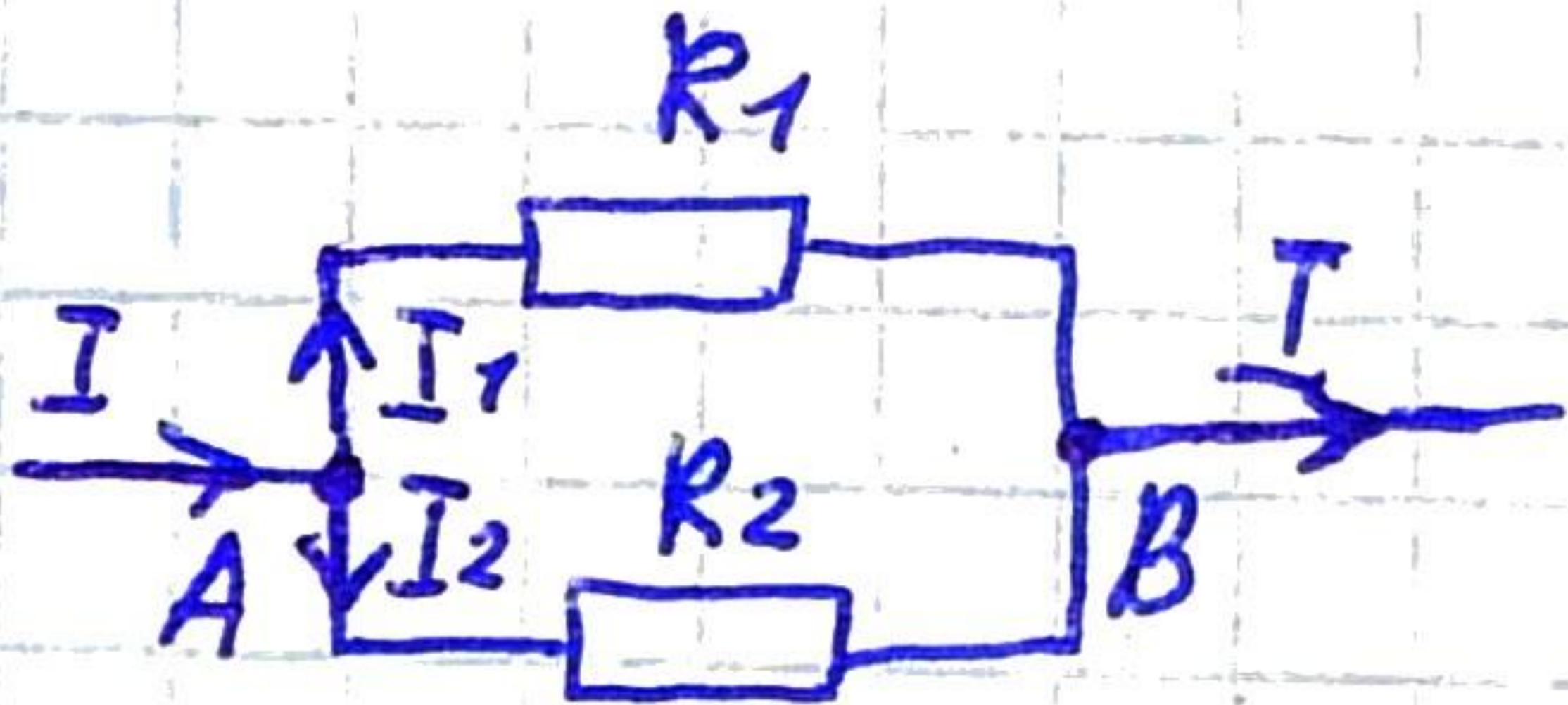
$$U_{AC} = U = U_1 + U_2$$

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

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

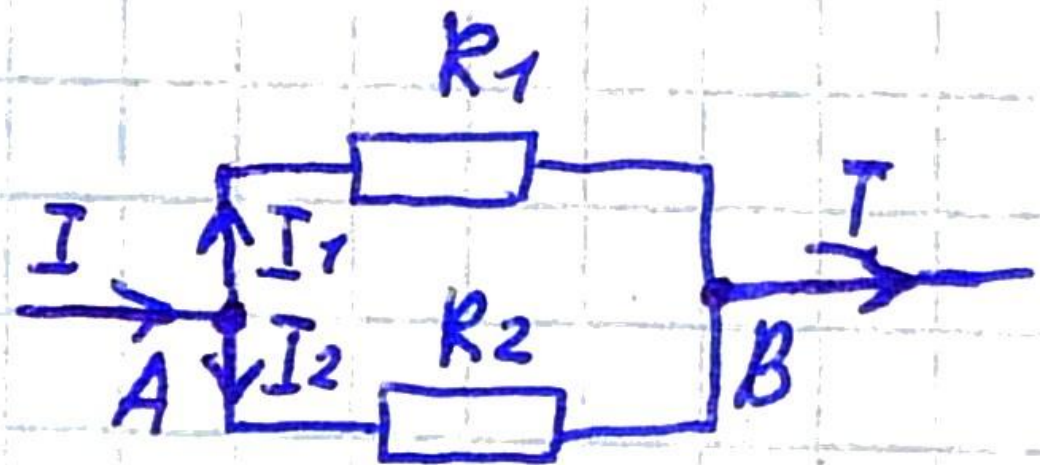






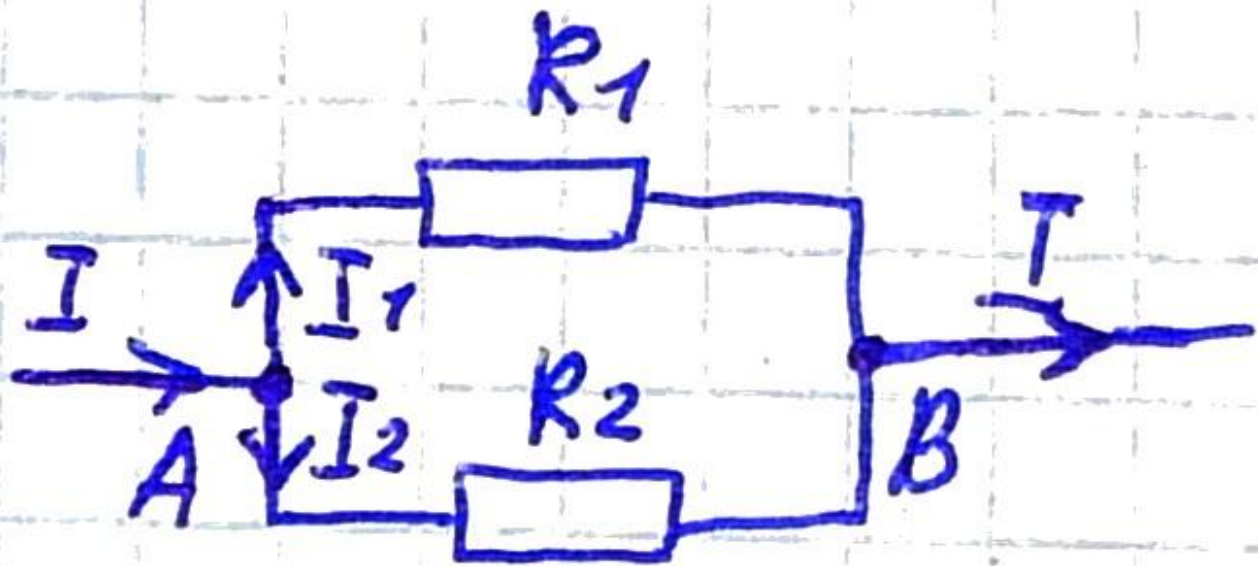
$$U = U_1 = U_2$$

$$I = I_1 + I_2$$



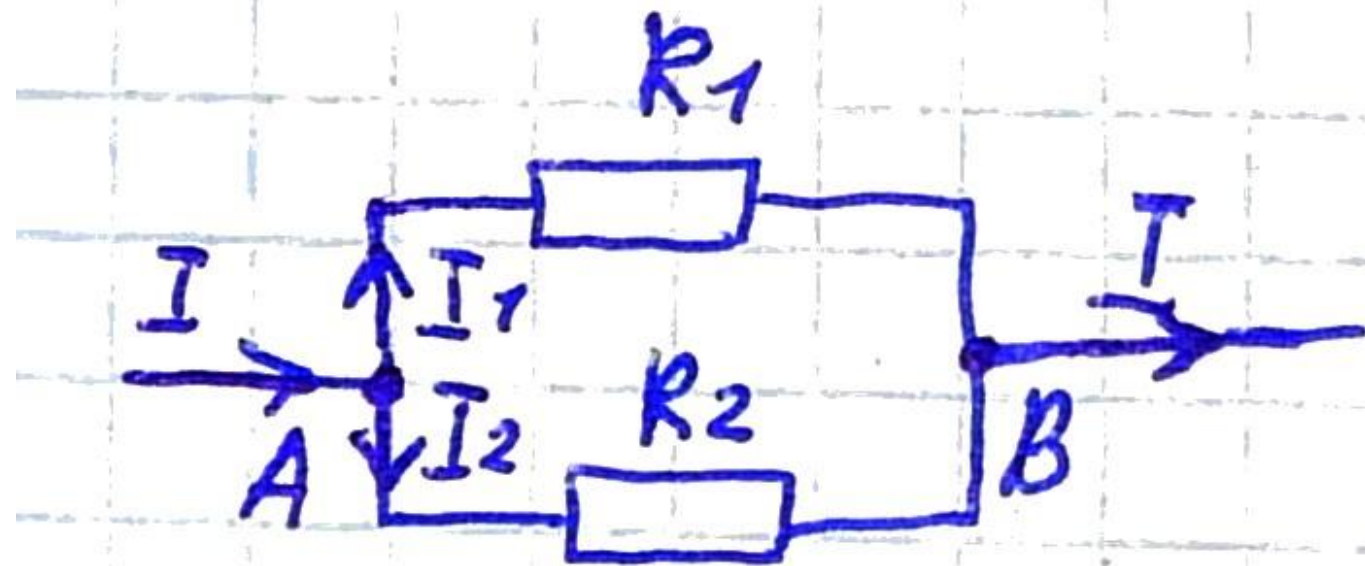
$$I_1 = \frac{U}{R_1}, \quad I_2 = \frac{U}{R_2}$$

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 $I_1 = I_2 = \frac{I}{2}$



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

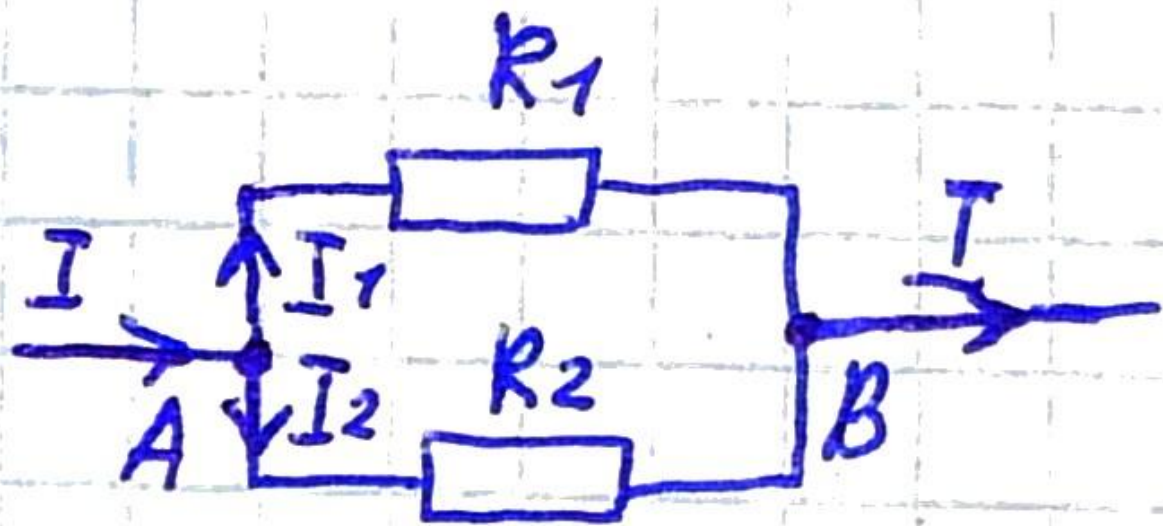
конформное преобразование при

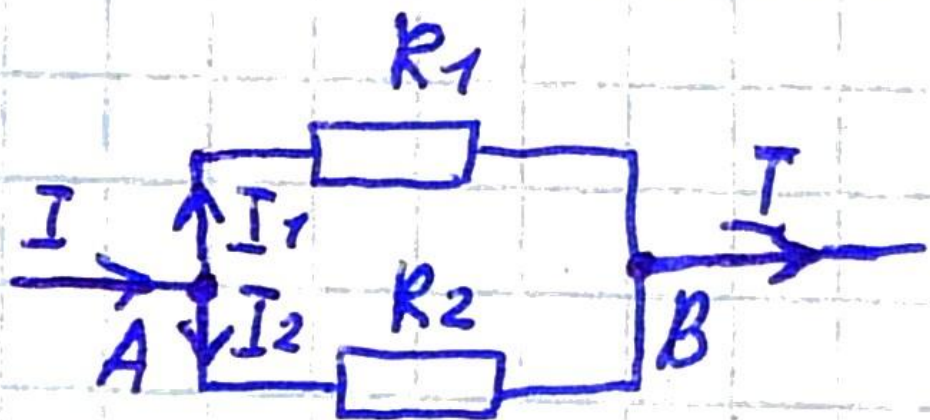
$$\frac{1}{R} = \frac{R_2 + R_1}{R_1 R_2}$$

),

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

глыx
npod-x





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

gby
npod

ecm $R_1 = R_2$, mo

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

ecm $R_1 = R_2 = R_3$, mo $R = \frac{R_1}{3}$

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

0,156 A

2,38

1,14

0,310 A

0,468 A



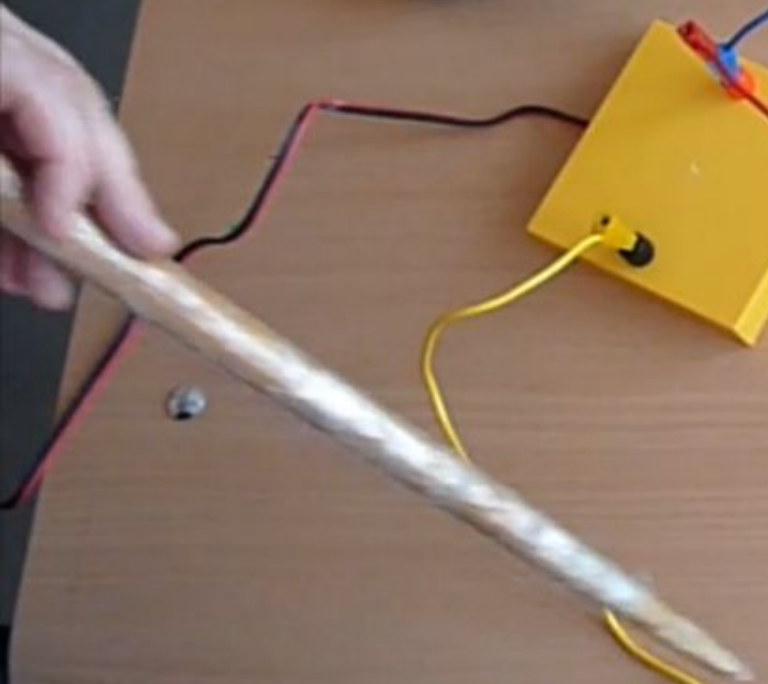
0,380 B

2,38

1,14

0,005 B

0,385 B



0,492 B

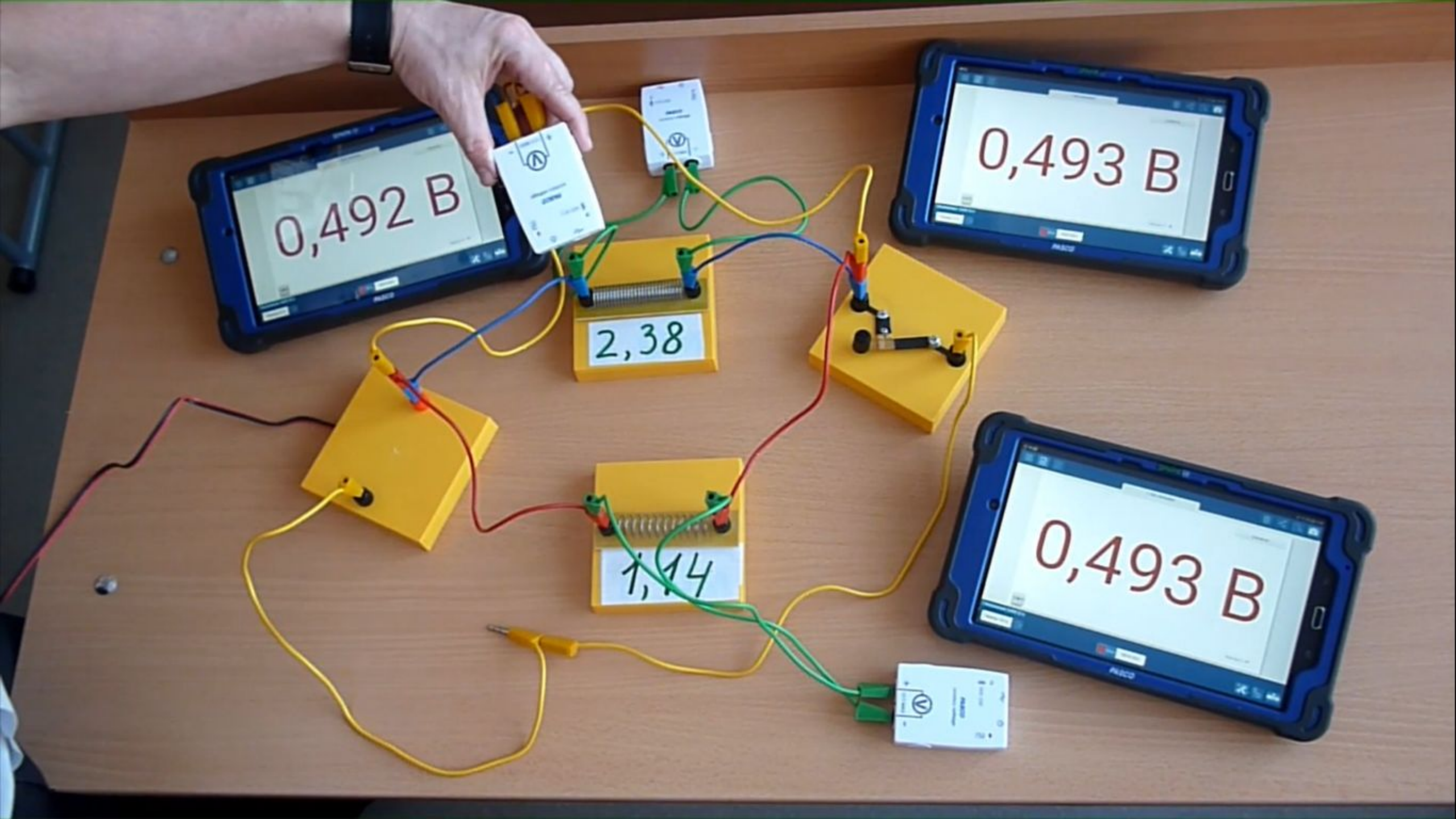
0,493 B

2,38

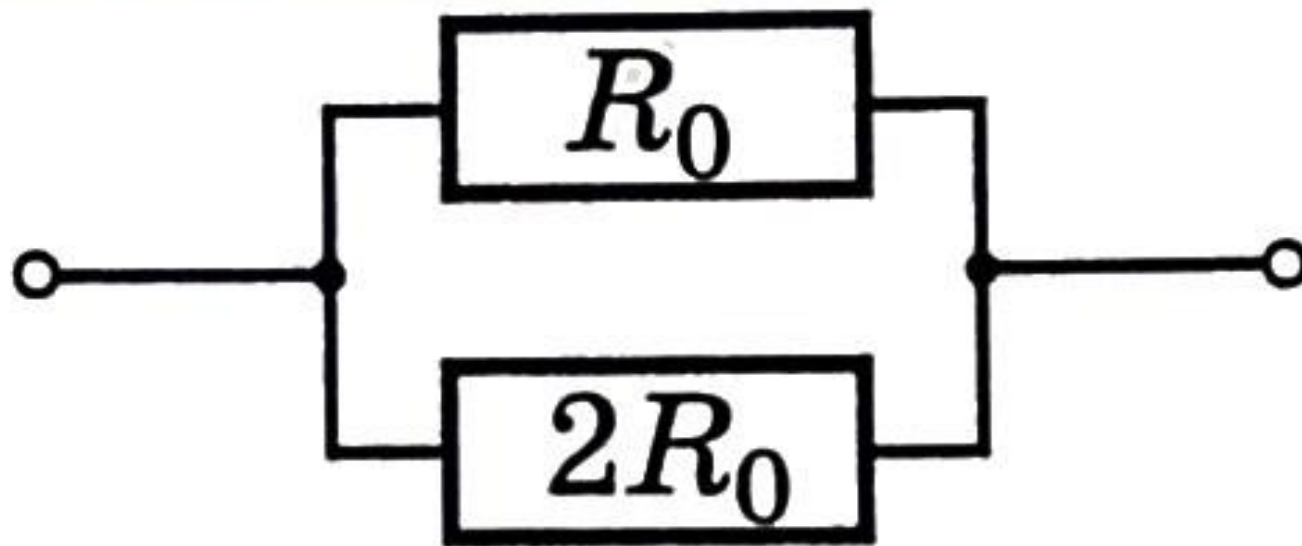


1,14

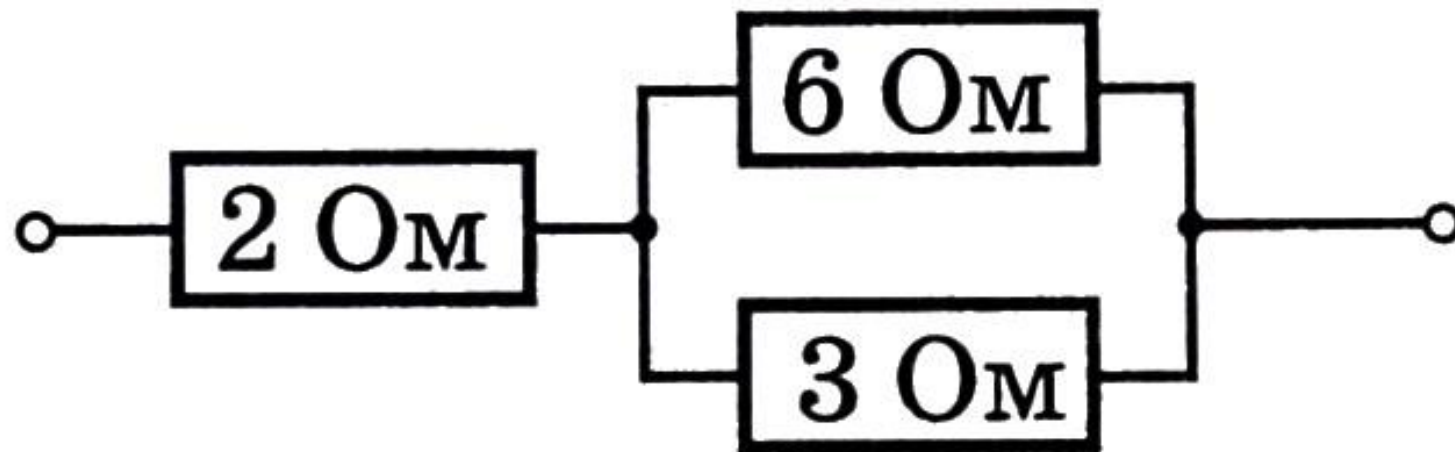
0,493 B



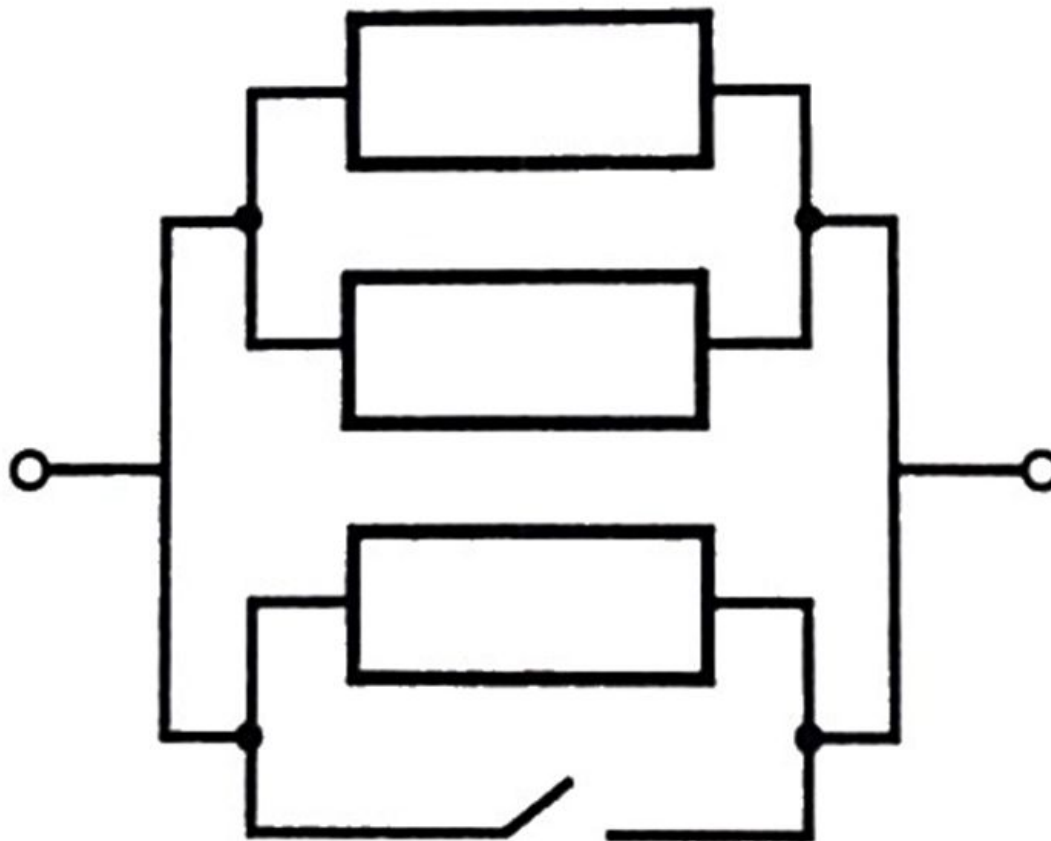
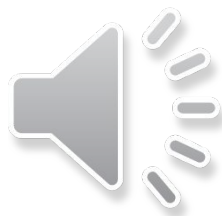
A1

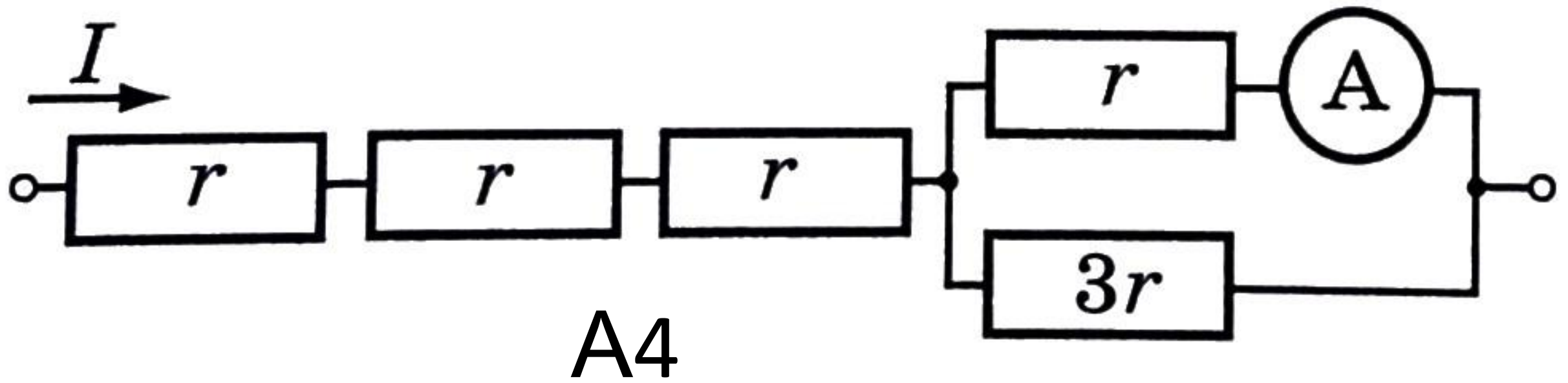


A2

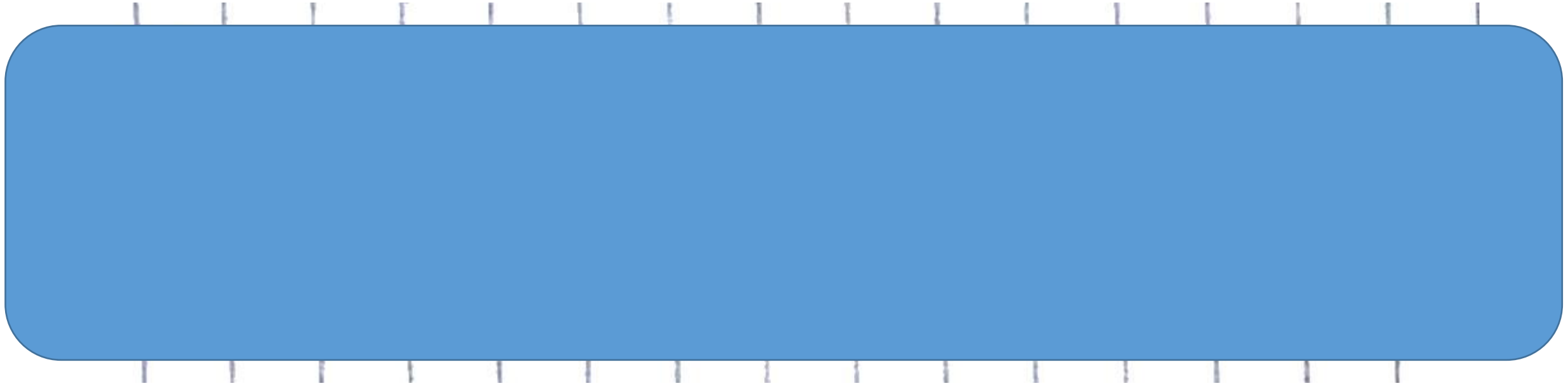


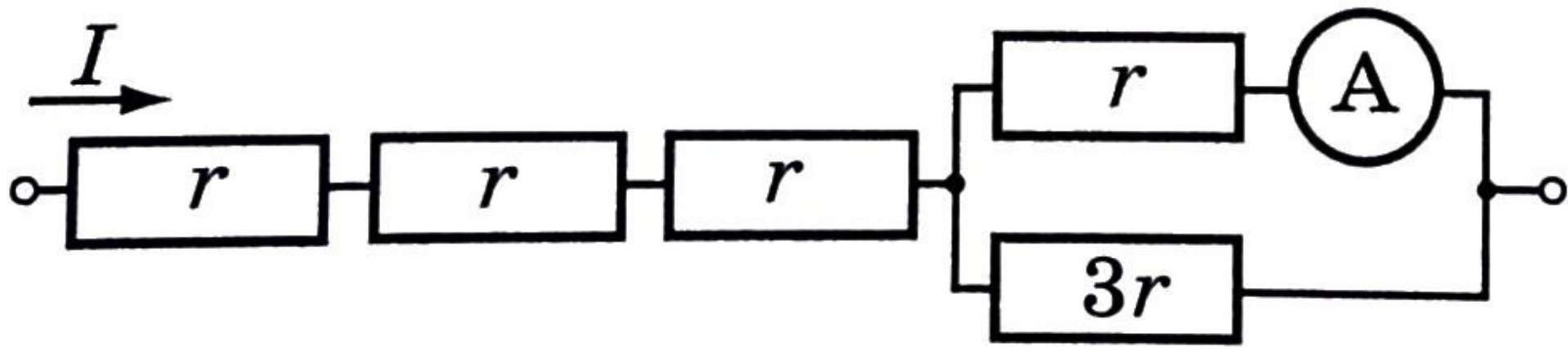
A3





A4



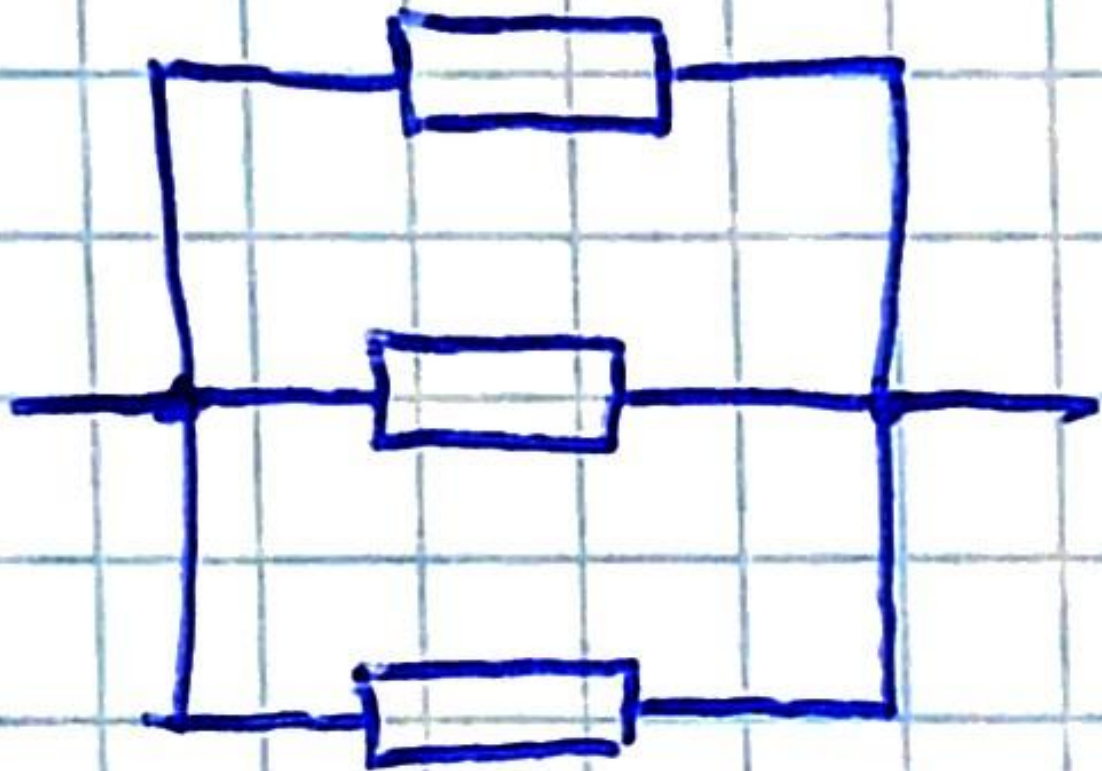


$$\begin{cases} I_1 = 3I_2 \\ I_1 + I_2 = 8 \end{cases} \quad \begin{cases} I_2 = 8 - I_1 \\ I_1 = 3 \cdot (8 - I_1) \end{cases}$$

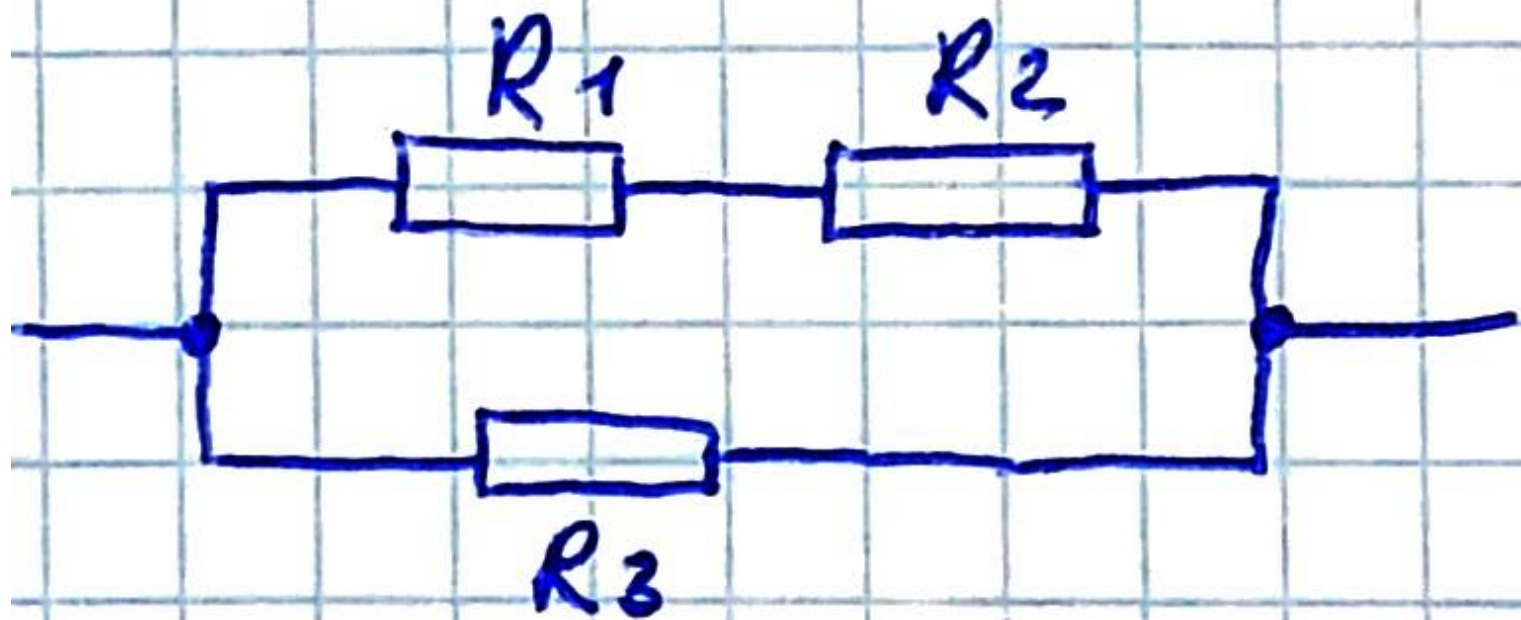
Какие можно получить
значения сопротивлений,
соединяя всеми
возможными способами три
резистора, если
сопротивление каждого
равно 6 Ом?



$$R = R_1 \cdot 3 = 6 \cdot 3 = 18 \Omega$$

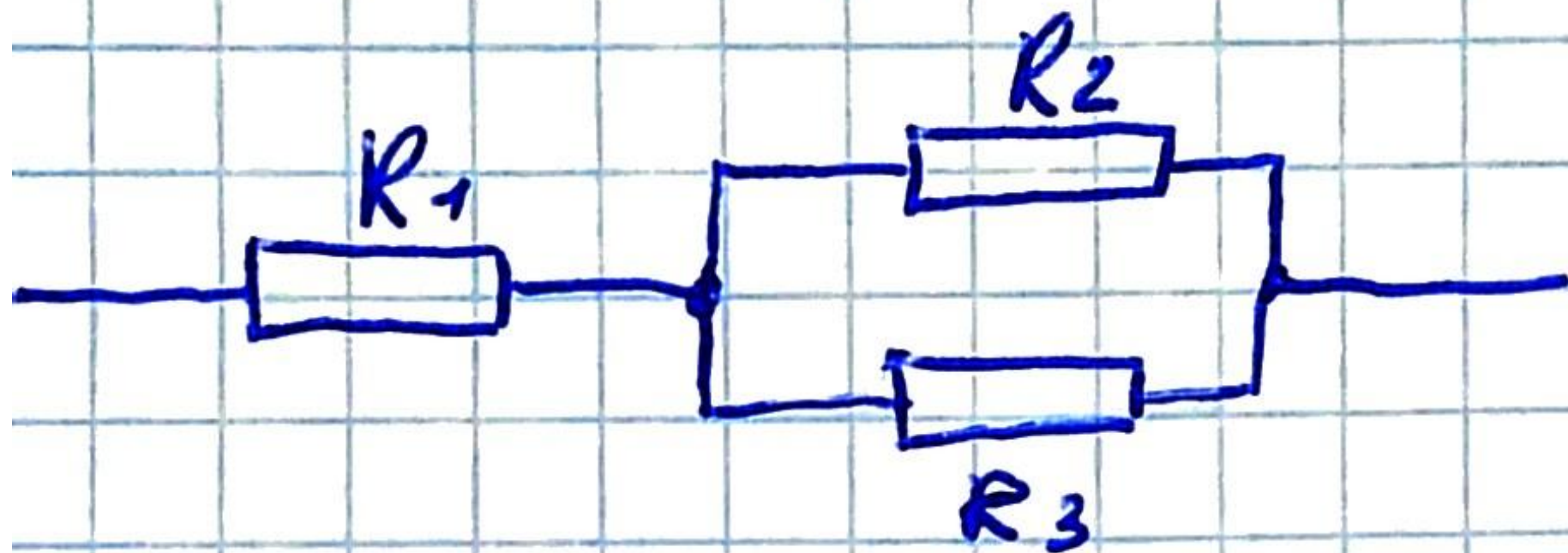


$$R = \frac{R_1}{3} =$$
$$= \frac{6}{3} = 2 \text{ Ohm}$$



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

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



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

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