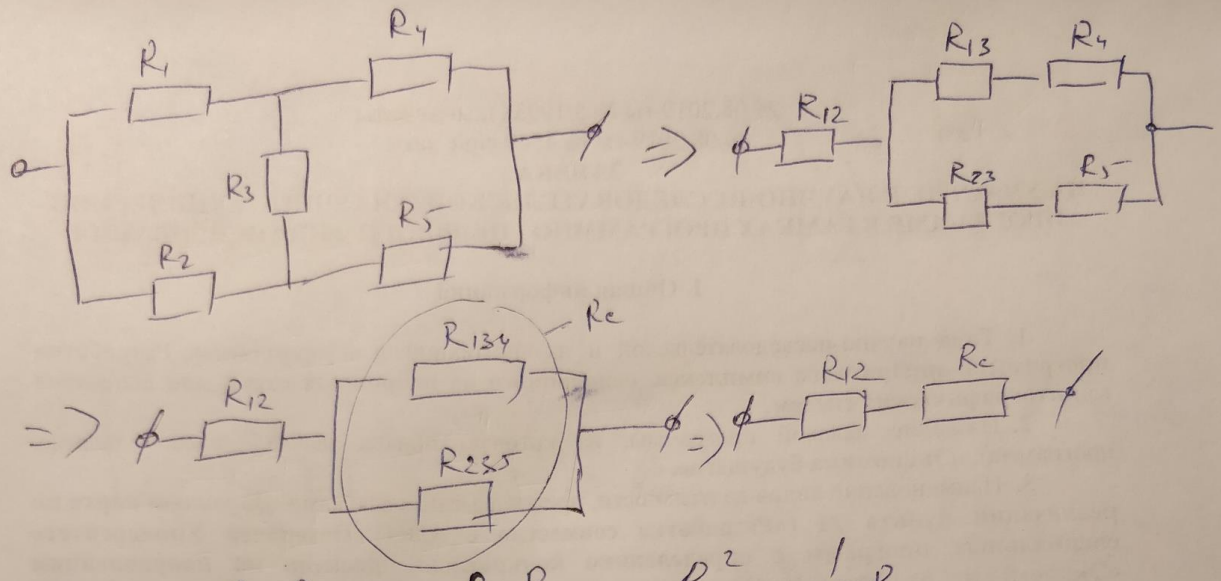


$$R_{12} = \frac{R_1 \cdot R_2}{R_1 + R_2 + R_3} = \frac{R \cdot R}{R + R + R} = \frac{R^2}{3R} = \frac{1}{3}R$$

$$R_{13} = \frac{R_1 \cdot R_3}{R_1 + R_2 + R_3} = \frac{1}{3}R$$

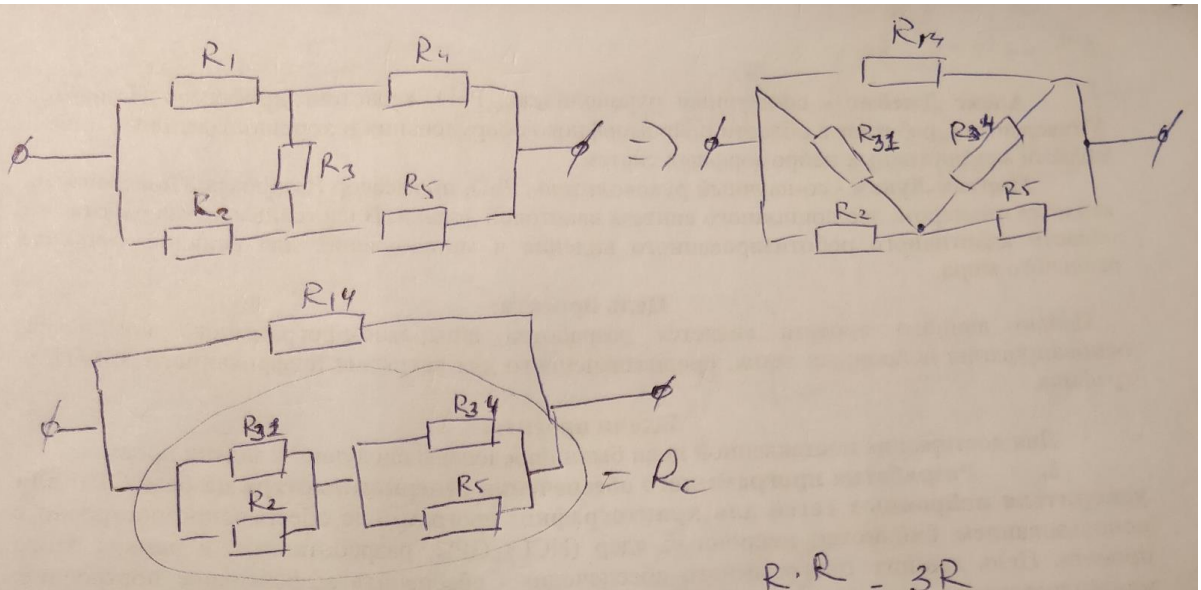
$$R_{23} = \frac{R_2 \cdot R_3}{R_1 + R_2 + R_3} = \frac{1}{3}R$$

$$R_{134} = \frac{1}{3} + R = \frac{4}{3}R$$

$$R_{235} = \frac{1}{3} + R = \frac{4}{3}R$$

$$R_c = \frac{\frac{4}{3}R \cdot \frac{4}{3}R}{\frac{4}{3}R + \frac{4}{3}R} = \frac{\frac{16}{9}R^2}{\frac{8}{3}R} = \frac{16}{9}R \cdot \frac{3}{8} = \frac{2}{3}$$

$$R_{cały} = R_{12} + R_c = \frac{1}{3}R + \frac{2}{3}R = \frac{3}{3}R = R$$



$$R_{14} = R_1 + R_4 + \frac{R_1 \cdot R_4}{R_3} = R + R + \frac{R \cdot R}{R} = 3R$$

$$R_{31} = R_3 + R_1 + \frac{R_3 \cdot R_1}{R_4} = 3R$$

$$R_{34} = R_3 \cdot R_4 + \frac{R_3 \cdot R_4}{R_1} = 3R$$

$$R_{312} = \frac{R_{31} \cdot R_2}{R_{31} + R_2} = \frac{3R \cdot R}{3R + R} = \frac{3R^2}{4R} = \frac{3}{4}R$$

$$R_{345} = \frac{R_{34} \cdot R_5}{R_{34} + R_5} = \frac{3}{4}R$$

$$R_{\Sigma} = R_{312} + R_{345} = \frac{3}{4}R + \frac{3}{4}R = \frac{6}{4}R = \frac{3}{2}R$$

$$R_{obw} = \frac{R_{14} \cdot R_c}{R_{14} + R_c} = \frac{3R \cdot \frac{3}{2}R}{R + \frac{3}{2}R} = \frac{\frac{9}{2}R^2}{\frac{5}{2}R} = R$$