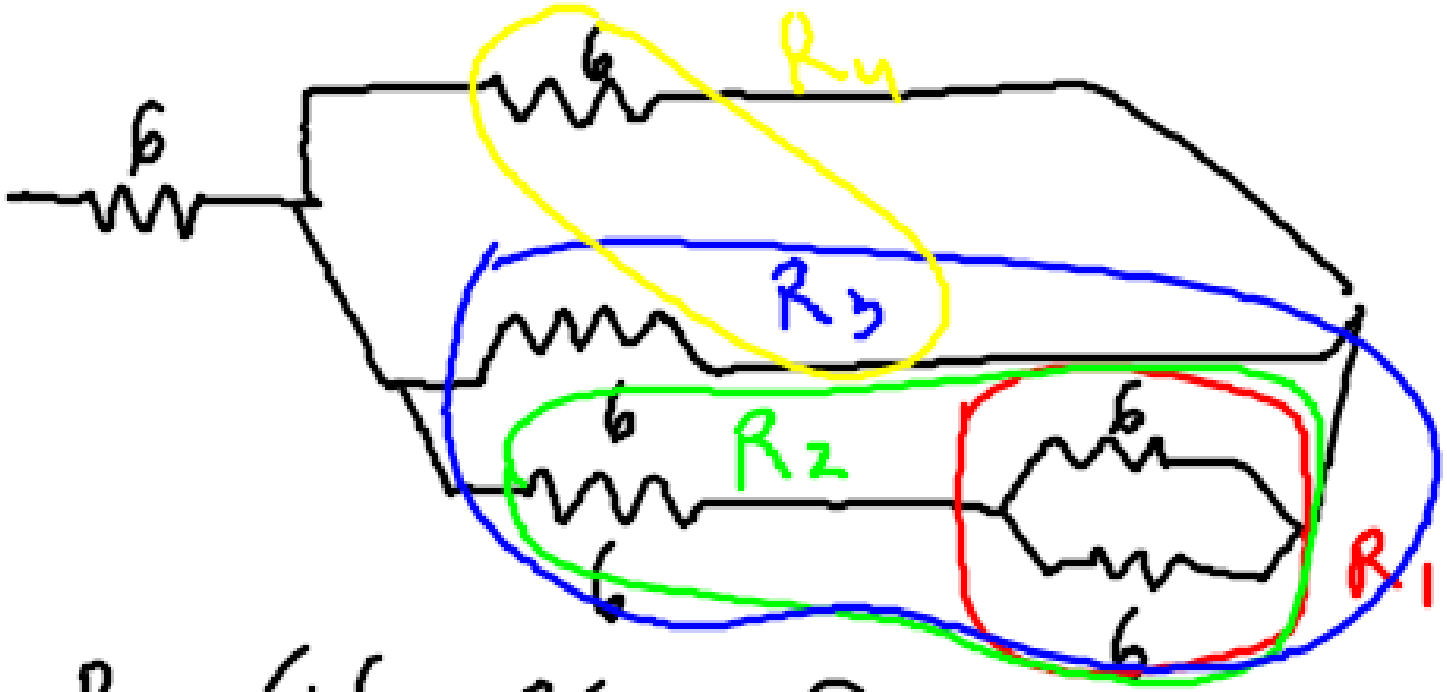


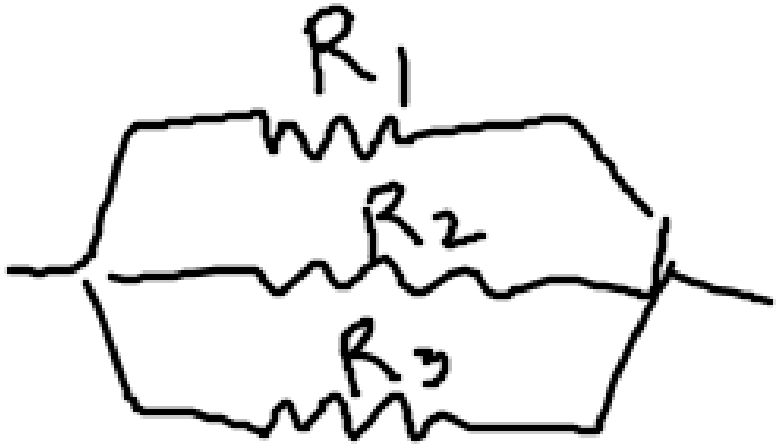
$$R_1 = \frac{6 \cdot 6}{6+6} = \frac{36}{12} = 3\,\Omega$$

$$R_2 = 3 + 6 = 9\,\Omega$$

$$R_3 = \frac{6 \cdot 9}{6+9} = \frac{54}{15} = 3'6\,\Omega$$

$$R_4 = \frac{3'6 \cdot 6}{6+3'6} = 2'25$$

$$R_T = R_4 + 6 = 2'25 + 6 = 8'25\,\Omega$$



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

$$2R$$

$$\frac{1}{R_{11}} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

$$\frac{1}{R_{11}} = \frac{R_2 \cdot R_3 + R_1 \cdot R_3 + R_1 \cdot R_2}{R_1 \cdot R_2 \cdot R_3}$$

$$R_T = \frac{R_1 \cdot R_2 \cdot R_3}{R_2 \cdot R_3 + R_1 \cdot R_3 + R_1 \cdot R_2}$$

3) $q_e = 1'6 \cdot 10^{-19} C$

$I = 1A \qquad t = 1s$

$$I = \frac{q}{t}$$

$$1 = \frac{q}{1}$$

$$q = 1C$$

Ohm

$V = I \cdot R$

R 3

$1\bar{e} \text{ —— } 1'6 \cdot 10^{-19} C$

$x \text{ —— } 1C$

$x = \frac{1}{1'6 \cdot 10^{-19}} = 6'25 \cdot 10^{18} \frac{e}{s}$

6) $V = IR$

$30 = I \cdot 20$

$I = \frac{30}{20}$

$I = 1'5\ A$

7) $R = 100\ \Omega$ $\quad 10^{-3}$ $\quad 3 \cdot 10^{-4}$

$I = 0'3\ mA = 3 \cdot 10^{-4}$

$\frac{0'3}{1000} = 0'0003$

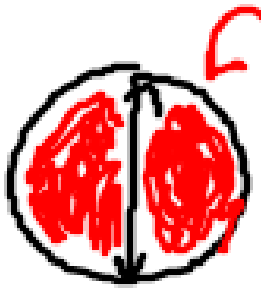
$V = IR$

$V = 3 \cdot 10^{-4} \cdot 100 = 3 \cdot 10^{-2} = 0'03\ V$

8) $L = 10\,m$

$\phi = 0'5\,mm = 0'0005 = 5 \cdot 10^{-4}\,m$

$\rho = 1'7 \cdot 10^{-8}$



$S = \pi \cdot r^2 = 3'14 \left(\frac{5 \cdot 10^{-4}}{2}\right)^2$

$S = 1'96 \cdot 10^{-7}\,m^2$

$$R = \rho \frac{L}{S} = 1'7 \cdot 10^{-8} \cdot \frac{10}{1'96 \cdot 10^{-7}} = 0'86\,\Omega$$

9) $R = 100\ \Omega$

$$S = 0'1\ mm^2 \cdot \frac{1\ m^2}{10^6\ mm^2} = 1 \cdot 10^{-7}\ m^2$$

$$\rho = 2'4 \cdot 10^{-8}$$

$$100 = R = \rho \frac{L}{S} = \frac{2'4 \cdot 10^{-8} \cdot L}{10^{-7}}$$

$$L = \frac{100 \cdot 10^{-7}}{2'4 \cdot 10^{-8}} = \underline{416'7\ m}$$

10] V ? $I = 2\,A$ $\qquad V = I R$

$L = 500\,m$

$\phi = 2\,mm \Rightarrow$ radio $= 1\,mm = 10^{-3} = 0'001$

$S = \pi \cdot r^2 = \pi \cdot 0'001^2 = 3'14 \cdot 10^{-6}\,m^2$

$R = \rho \cdot \frac{L}{S} = 1'7 \cdot 10^{-8} \cdot \frac{500}{3'14 \cdot 10^{-6}} =$

$= 2'7\,\Omega$

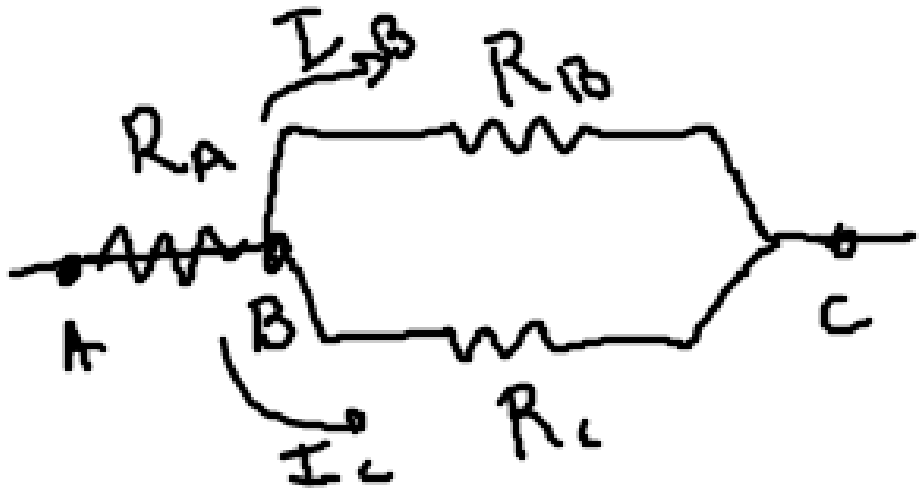
$V = 2 \cdot 2'7 = 5'4\,V$

1 3 y 2 4

$$R_1 = \frac{2 \cdot 4}{2+4} = \frac{8}{6} = 1'3\ \Omega$$

$$R_2 = 4 + R_1 = 4 + 1'3 = 5'3\ \Omega$$

$$V = IR = 3 \cdot 5'3 = \underline{15'9\ V}$$



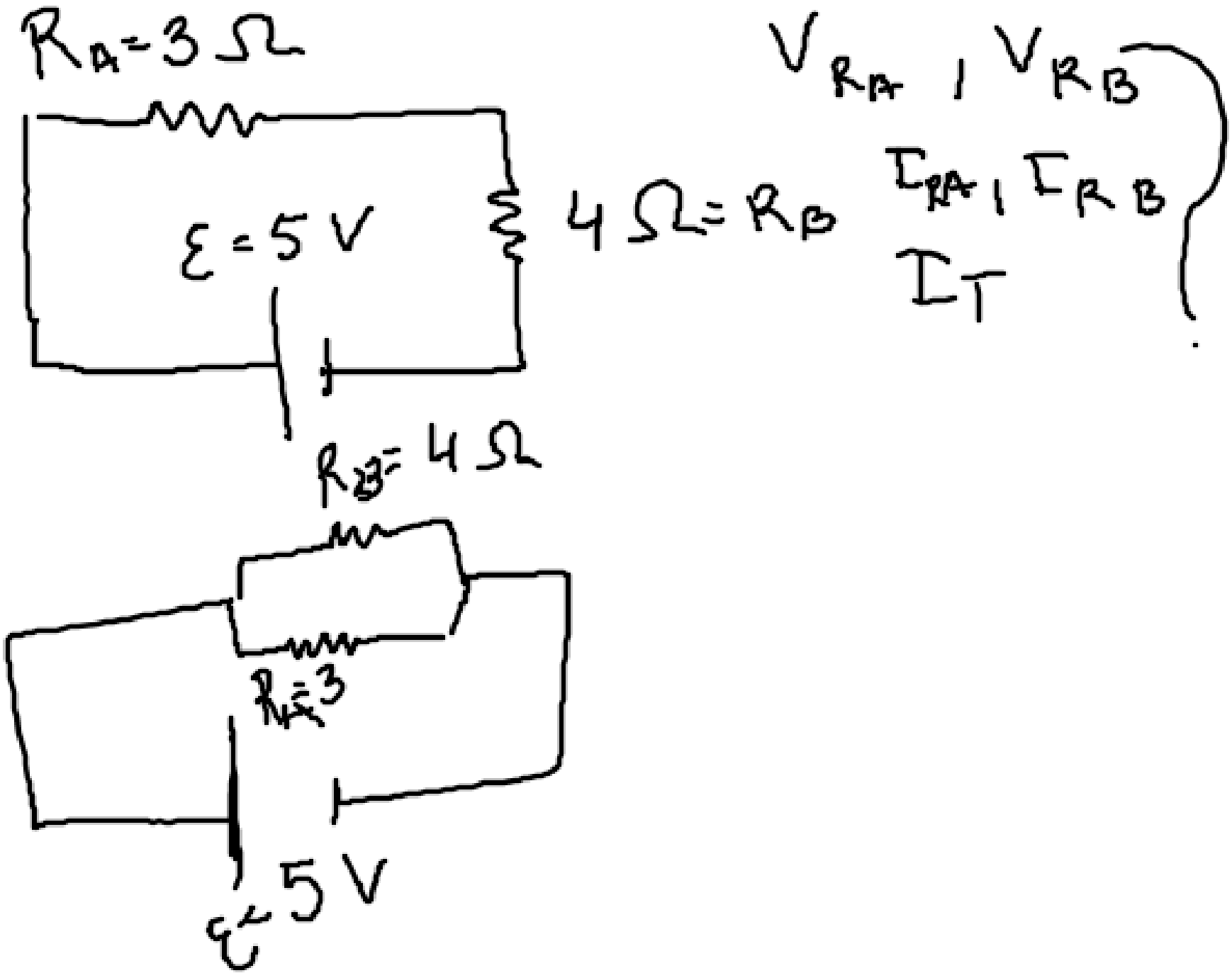
$R_A \rightarrow I = 3\ A$

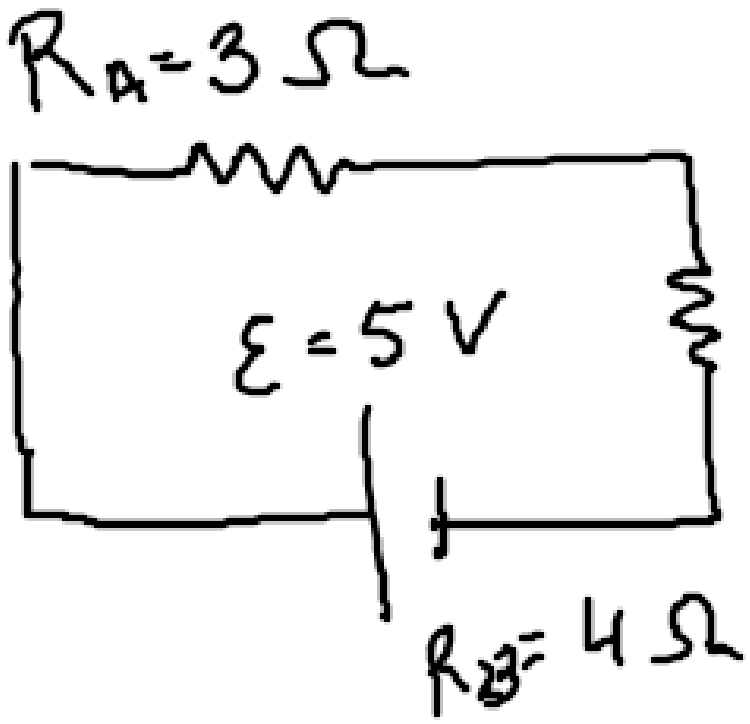
$V_{AB} = I \cdot R = 3 \cdot 4 = 12\ V$

$V_{BC} = 15'9 - 12 = 3'9\ V$

$I_B \rightarrow V_{BC} = I_B \cdot R_B \rightarrow I_B = \frac{3'9}{2} = 1'9\ A$

$I_C \rightarrow V_{BC} = I_C \cdot R_C \rightarrow I_C = \frac{3'9}{4} = 0'9\ A$


$R_A = 3\ \Omega$
$\mathcal{E} = 5\ V$
$4\ \Omega = R_B$
V_{R_A} | V_{R_B}
I_{R_A} | I_{R_B}
I_T
$R_B = 4\ \Omega$
$R_A = 3$
$\mathcal{E} = 5\ V$



$$R_T = R_A + R_B = 7\,\Omega$$

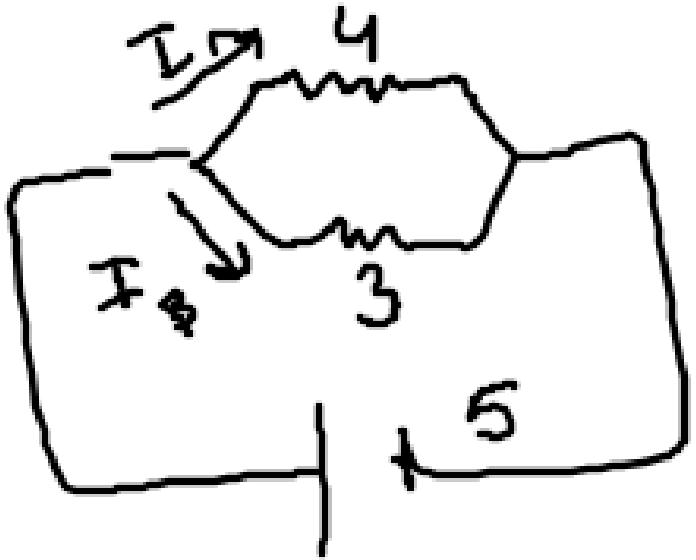
$$V_T = I_T \cdot R_T$$

$$5 = I_T \cdot 7$$

$$I_T = 0'71\,A$$

$$V_{RA} = I_{RA} \cdot R_A = 0'71 \cdot 3 = 2'13\,V$$

$$V_{RB} = I_{RB} \cdot R_B = 0'71 \cdot 4 = 2'84\,V$$



$$R_T = \frac{4 \cdot 3}{4+3} = 1'7\ \Omega$$

$$I_T = \frac{V_T}{R_T} = \frac{5}{1'7} = 2'9\ A$$

$$I_A = \frac{5}{4} = 1'25\ A \qquad I_B = \frac{5}{3} = 1'66\ A$$