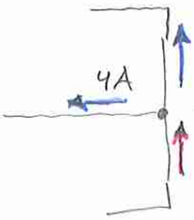
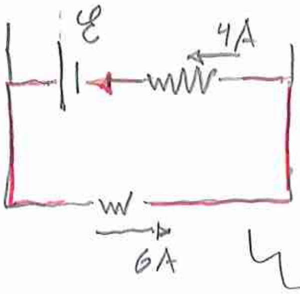


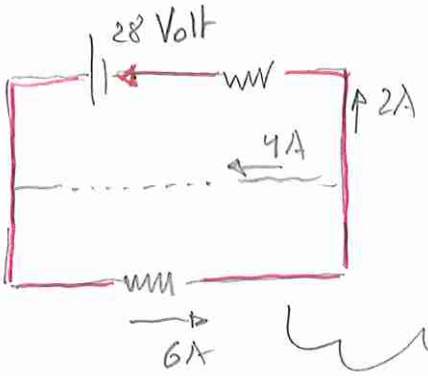
$I + 4 = 6$:-)

$\boxed{I = 2\ A}$



$\mathcal{E} - \underbrace{6\times 3}_{18} - \underbrace{4\times 6}_{24} = 0$

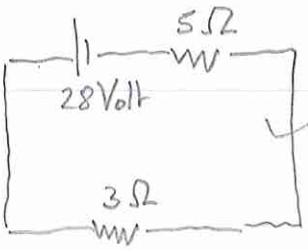
$\boxed{\mathcal{E} = 42\ \text{Volt}}$



$\underbrace{28 - \underbrace{6\times 3}_{18}}_{10} - 2\times R = 0$

$\boxed{R = 5\ \Omega}$

CIRCUIT
COUPE EN x :-)



$28 - (5+3)\,I = 0$

$\boxed{I = \frac{28}{8} = 3{,}5\ A}$

UNE SOURCE DE TENSION DISPARAIT
LE COURANT DIMINUE DANS LA RESISTANCE
DE 3 Ω :-)

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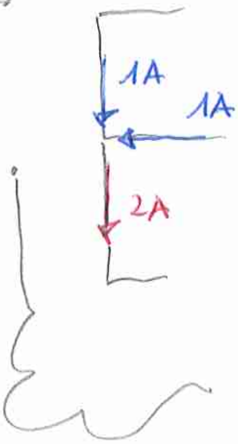
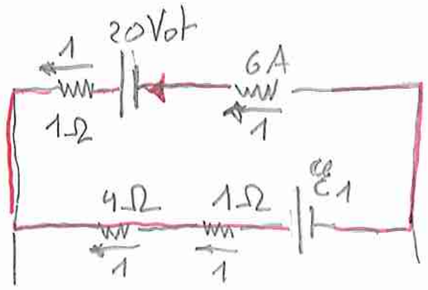
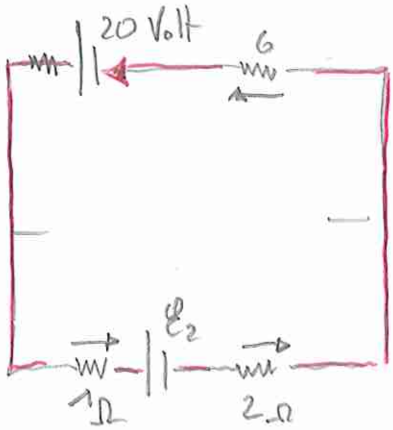




$$20\text{Volt} - \underbrace{1\times1}_{1} + \underbrace{(4+1)\times1}_{5} - \mathcal{E}_1 - \underbrace{6\times1}_{6} = 0$$

$$\mathcal{E}_1 = 25 - 7 = 18 \text{ Volt}$$

$$\boxed{\mathcal{E}_1 = 18 \text{ Volt}}$$



$$20 - \underbrace{(1\times2)}_{2} - \mathcal{E}_2 - \underbrace{(2\times2)}_{4} - \underbrace{(6\times1)}_{6} - (1\times1) = 0$$

$$\mathcal{E}_2 = \underbrace{20 - 13}_{7}$$

$$\boxed{\mathcal{E}_2 = 7 \text{ Volt}}$$

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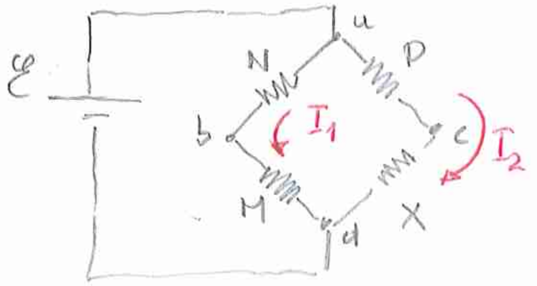

$$V_{ab} = V_{ac}$$

$$I_1 N = I_2 P$$

$$\boxed{\begin{aligned}\mathcal{E} &= I_1(N+M)\\ \mathcal{E} &= I_2(P+X)\end{aligned}}$$

$$\frac{N\cancel{\mathcal{E}}}{(N+M)} = \frac{P\cancel{\mathcal{E}}}{(P+X)}$$

$$N(P+X) = P(N+M)$$

$$NX = PM$$

860 33,38

$$\boxed{X = \frac{MP}{N}}$$

14

$$\boxed{X = 2050\,\Omega}$$

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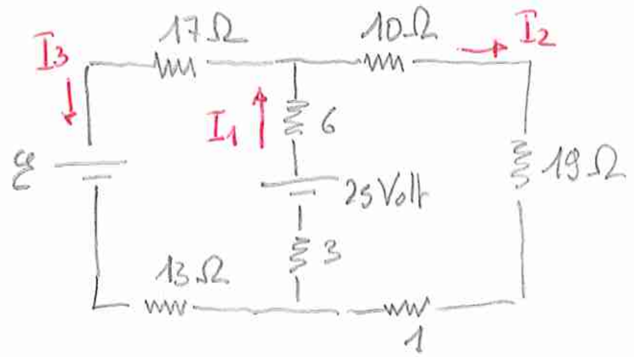
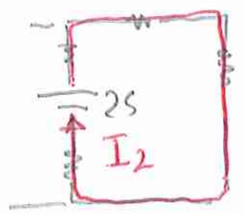


$$P = I_1^2 R$$

23 6

$$\boxed{I_1 = \sqrt{\frac{23}{6}} = 1{,}96\ \text{A}}$$



$$25 - \underbrace{(1{,}96)(6+3)}_{17{,}64} - \underbrace{(10+19+1)}_{30} I_2 = 0$$

$$\boxed{I_2 = 0{,}245\ \text{A}}$$

$$\boxed{I_3 = 1{,}715\ \text{A}}$$

$$25 - \underbrace{(1{,}96)(6+3)}_{17{,}64} - \underbrace{(1{,}715)(17+13)}_{51{,}45} - \mathcal{E} = 0$$

$$\boxed{\mathcal{E} = -44{,}1\ \text{Volt}}$$

LA POLARITE DE LA BATTERIE EST INVERSE A CELLE INDIQUEE SUR LE SCHEMA

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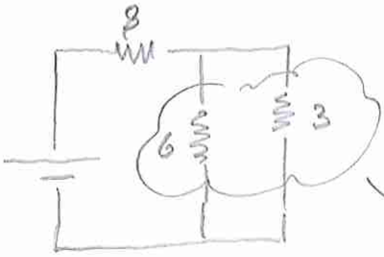
- $t=0$



$$\frac{1}{6}+\frac{1}{3}=\frac{1}{R_{//}}$$

$$\frac{3}{6}=\ \rightsquigarrow\ R_{//}=2$$

$$\underset{42}{\mathcal{E}} = I\,(\overbrace{2+8}^{R})$$

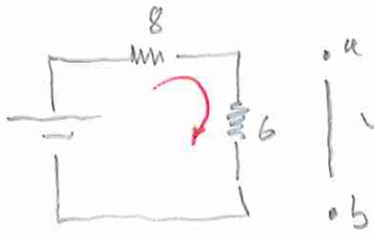
$$\boxed{I=\frac{42}{10}=4{,}2\ A}$$

$$\boxed{I(t)=\frac{V}{R}\exp(-t/RC)}$$

$$I(0)=\frac{V}{R}\quad :-)$$

- $t\to\infty$

PLUS DE
COURANT
PAR LA CAPACITE !



$$V_{ab}=\underbrace{6\times 3}_{18}$$

$$\underset{42}{\mathcal{E}} = I\,(\underbrace{8+6}_{14})$$

$$\boxed{I=\frac{42}{14}=3\ A}$$

$$Q = \underset{4\,10^{-6}}{C}\ \underset{18}{V_{ab}}$$

$$\boxed{Q=72\ 10^{-6}\ C}$$

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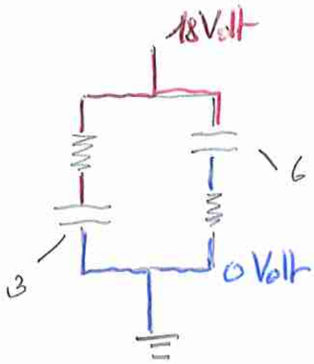
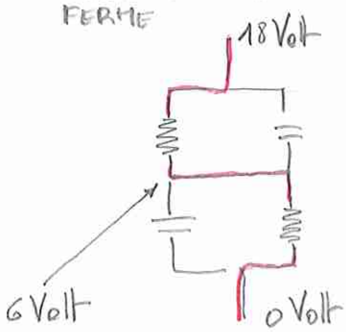


INTERRUPTEUR OUVERT

$$\boxed{V_{ab} = 18 \text{ Volt}}$$:-)

a A LE POTENTIEL
LE PLUS ELEVE !

INTERRUPTEUR
FERME



$$18 = (6+3)\,I$$

$$\boxed{I = 2\,A}$$

CHARGES
INITIALES
DE CONDENSATEURS

$$3\ 10^{-6} \times 18 = 54\ 10^{-6}\ C$$
$$6\ 10^{-6} \times 18 = 108\ 10^{-6}\ C$$

APRES
AVOIR FERME L'INTERRUPTEUR

$$3\ 10^{-6} \times 6 = 18\ 10^{-6}\ C$$
$$6\ 10^{-6} \times 12 = 72\ 10^{-6}\ C$$

PERTE
DE CHARGES
DES 2 CONDENSATEURS

$$36\ 10^{-6}\ C$$
$$36\ 10^{-6}\ C$$

C'EST LOGIQUE
LE VOLTAGE DIMINUE
AUTOUR DES DEUX CONDENSATEURS.

$\boxed{108}$

$$R = \frac{\rho L}{\pi R^2}$$

10^{11} $12\ 10^{-9}$ $0.09\ 10^{-18}$

$$\rho = \frac{\pi\ 0{,}09}{12}\ 10^2$$

$$\boxed{\rho = 2{,}4\ \Omega . m}$$

$$\sum_{i=1}^{n} \frac{1}{R} = \frac{n}{R} = \frac{1}{R_{eq}}$$

$$\boxed{R_{eq} = R/n}$$

$$V = \frac{R}{n} I$$

$I \rightarrow j\, A$

$$\frac{n}{A} = \frac{R\, j}{V} = \frac{10^{11}\ [\Omega]\ \ 5\ [\mu A/cm^2]}{50\ [\mu Volt]}$$

$$= 10^{10}\ [1/cm^2]$$

$$\boxed{\frac{n}{A} = 100\ [1/\mu m^2]}$$

$$\boxed{\tau = RC = \underbrace{10^{11} \times 10^{-16}}_{10^{-5}} = 10^{-5}\ [s]}$$