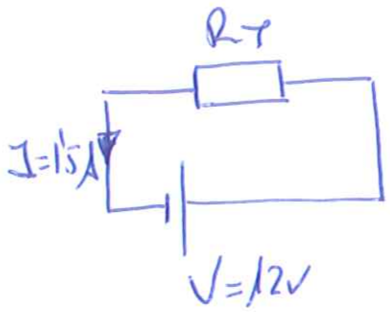
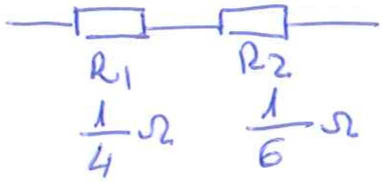
6 a) $R_T = \frac{U}{I}$ $\left\{ \begin{array}{l} I = 1'5\,A \\ V = 12\,V \end{array} \right\}$



$$R_T = \frac{12V}{1'5A} = 8\Omega.$$

$$\boxed{R_T = 8\Omega}$$

Circuito serie



$$R_S = R_1 + R_2 = \frac{1}{4}\Omega + \frac{1}{6}\Omega = \frac{3\Omega}{12} + \frac{2\Omega}{12} = \frac{5}{12}\Omega$$

$$R_S = \frac{5}{12}\Omega = 0'41\Omega.$$

$$\boxed{R_S = 0'41\Omega = \frac{5}{12}\Omega}$$

- R paralelo

$$\frac{1}{R_P} = \frac{1}{R_S} + \frac{1}{R_3} = \frac{1}{\frac{5}{12}} + \frac{1}{\frac{5}{8}} = \frac{12}{5} + \frac{8}{5} = \frac{20}{5} = 4\Omega$$

$$\frac{1}{R_P} = 4\Omega \Rightarrow R_P = \frac{1}{4}\Omega = 0'25\Omega$$

$$\boxed{R_P = 0'25\Omega = \frac{1}{4}\Omega}$$

$$R_4 = 8\Omega - 0'25 = 7'75\Omega$$

$$\boxed{R_4 = 7'75\Omega}$$

b)

$R_4 \Rightarrow I_{R_4} = \frac{V_{R_4}}{R_4} \Rightarrow \boxed{I \text{ del circuito} = I_{R_4} = 1'5A}$

$R_3 \Rightarrow I_{R_3} = \frac{V_{R_3}}{R_3}$

$R_2 \Rightarrow I_{R_2} = \frac{V_{R_2}}{R_2}$ $\qquad$ $R_1 \Rightarrow I_{R_1} = \frac{V_{R_1}}{R_1}$

c) Tensiones

- $V_{R4} = R_4 \cdot I = 7'75\Omega \cdot 1'5A = 11'625V.$

$$\boxed{V_{R4} = 11'625V}$$

- $V_{R paralelo} \Rightarrow ??$

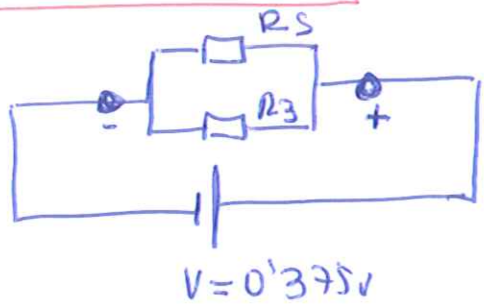
$V_T = V_{R paralelo} + V_{R4}$

$12V = V_{R paralelo} + 11'625V$

$12V - 11'625V = V_{R paralelo} \Rightarrow \boxed{V_{R paralelo} = 0'375V}$

- $\boxed{V_{R paralelo} = V_{R3} = 0'375V}$ Al ser un circuito paralelo

ejemplo:



$V_{RS} = V_{R3} = V = 0'375V$

- $\boxed{V_{RS} = V_{R3} = 0'375V.}$

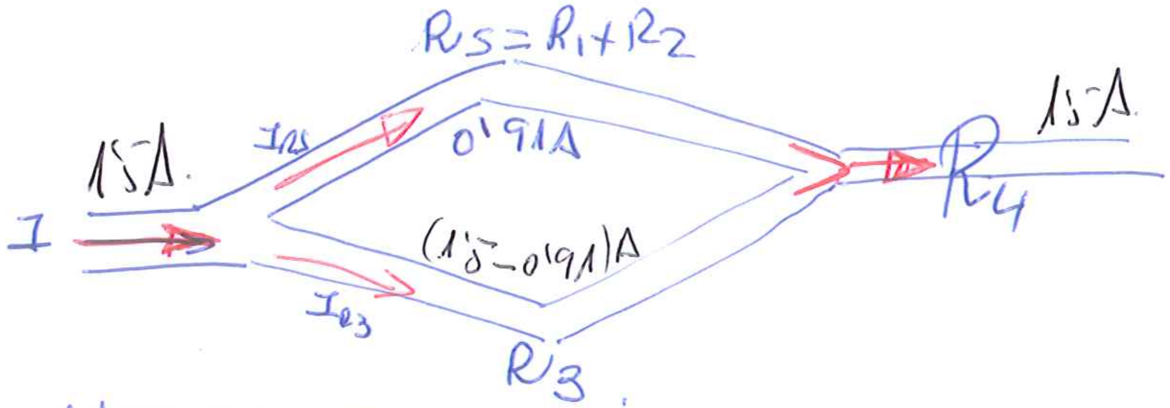
$V_{RS} = I_{serie} \cdot R_{serie}.$ (despejamos I_{serie})

$$I_{serie} = \frac{V_{RS}}{R_S} = \frac{0'375V}{0'41\Omega} = 0'91A.$$

(inicio problema)

En un circuito serie:
$I_{serie} = I_{R1} = I_{R2} = 0'91\ A.$

- En un circuito paralelo se reparten las corrients



Paralelo
$I = I_{RS} + I_{R3}$
Serie
$I = I_{R4}$

Teoría

$$I = R_S + I_{R3}$$

$$1'5A = 0'91A + I_{R3}$$

$$I_{R3} = 1'5A - 0'91A = 0'59A.$$

$$I_{R3} = 0'59A.$$

Resumiendo

$I = 1'5A$

$I_{RS} = 0'91A$ < $I_{R1} = 0'91$; al estar en serie ; $I_{R2} = 0'91$ ⇒ $\left\{ \begin{array}{l} I_{R1} = V_{R1}/R_1 \\ I_{R2} = V_{R2}/R_2 \end{array} \right.$ Despejar V_{R1} y V_{R2}

$I_{R3} = 0'59A.$

$I_{R4} = I = 1'5A.$

Tensiones V_{R1} y V_{R2}

$V_{R1} = R_1 \cdot I_{R1} = \frac{1}{4}\Omega \cdot 0'91A = 0'2275V.$ $\boxed{V_{R1} = 0'2275V}$

$V_{R2} = R_2 \cdot I_2 = \frac{1}{6}\Omega \cdot 0'91A = 0'1516V$ $V_{R2} = 0'15\ V$

0'3775.

V paralelo igual → correcto.