$$\left[\frac{1}{6}+\frac{1}{6}+\frac{1}{4}\right]^{-1} = \frac{4}{12} = 6||6||4$$

$$1 \rightarrow (r_q+r_6) || \left\{\left[(r_7+r_8)||r_5||r_4\right]+r_3\right\} \rightarrow r_2 \rightarrow req-1$$

$$req-1 = (4+8)||\left\{\left[(4+2)||6||4\right]+8\right\} = (12)||\left[(6||6||4)+8\right]$$

$$= 12||\left[\frac{4}{12}+8\right]$$

$$= 12||\frac{103}{12} = 12||\frac{1236}{247} \sim 5\Omega$$

$$req-2 = (req_1+r_2)||r_1 = \left(\frac{1236}{247}+8\right)||10$$

$$req-2 = \frac{3212}{247}||10 \approx 5.65294\Omega$$

$$I = \frac{V}{Req-2} = \frac{90}{5.65294}$$

$$req-2 \approx 5.65294 \qquad \approx 15.92092\,A$$

hoja 1

b) Determina I_3 e I_9 hoja 2

$r_b = r_6 + r_b$

$r_a = [(r_7 + r_8) || r_5 || r_4] + r_3$

$r_b = 8 + 4 = 12\Omega$

$r_b = [(4+2) || 6 || 4] + 8 = \frac{103}{12}$

De:

$I_w = \dfrac{r}{r + r_2 + r_{eq-1}} \cdot I$ Por división de corriente
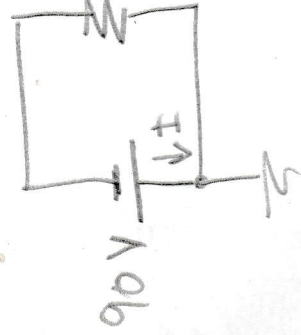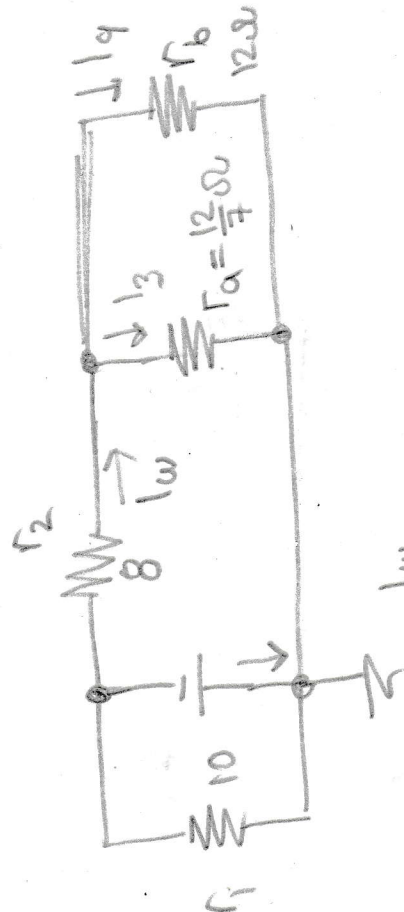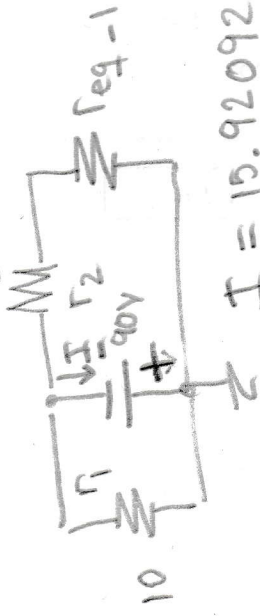
$I_w = \dfrac{10}{10 + 8 + \frac{1236}{247}\,\Omega}$

$I = 15.92092A$

Por división de corriente

$I_3 = \dfrac{r_b}{r_a + r_b}\, I_w = \dfrac{12\,\Omega}{\left(\frac{103}{12} + 12\right)\Omega} \cdot 6.92092A = 4.03487A$

$\not{15.92092A} \approx 6.92092 A$

Por ley de corrientes

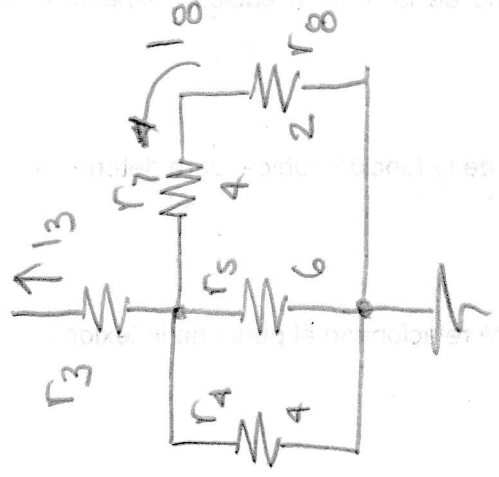$I_9 = I_w - I_3 = 6.92092A - 4.03487A = 2.88665\ A$
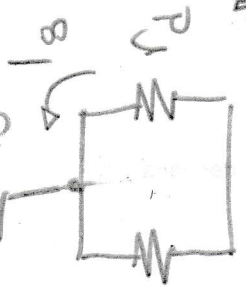
c) Encuentra I_8

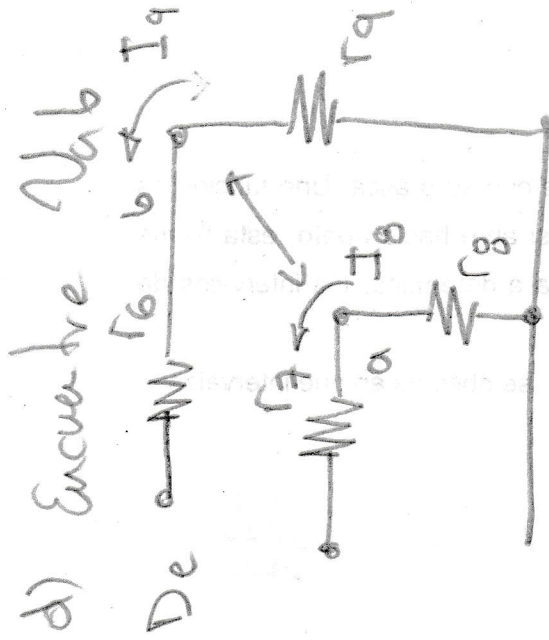Por divisor de Corriente

De

Equivalente $\Longrightarrow$

$$I_8 = \frac{r_c}{r_c + r_d} \cdot I_3$$

Donde

$$r_c = 6||4 = \frac{12}{5}\,\Omega \qquad r_d = 4+2 = 6\,\Omega$$

$$I_3 = 4.03487\,A$$

$$I_8 = \frac{12/5}{12/5 + 6} \cdot 4.03487 = \underline{1.15282\,A}$$

d) Encuentre V_{ab}

De

$V_a = I_8 R_8 = (1.15282 \, A)(2\Omega) = 2.30564 \, V$

$V_b = I_9 R_9 = (2.88605 \, A)(4\Omega) = 11.5442 \, V$

$V_{ab} = V_b - V_a = 2.30564 - (11.5442)$

$V_{ab} = -9.23856 \, V$