I

Encontrar V_1

$P_1 = \frac{V_1^2}{R_1} \Rightarrow 50W = \frac{V_1^2}{3\Omega}$

$V_1^2 = 150V \Rightarrow \boxed{V_1 = 12,25V}$

Encontrar I

$I = I_1 = I_2$

$I = V/R \Rightarrow I = \frac{12,25V}{3\Omega}$

$\boxed{I = 4A}$

Encontrar V_2

$V_2 = V_T - V_1 \Rightarrow V_2 = 80V - 12,25V$

$\boxed{V_2 = 67,75V}$

Encontrar P_2

$P_2 = V_2 I \Rightarrow 67,75V \times 4A$

$\boxed{P_2 = 271W}$

Encontrar R_2

$R_2 = V_2 / I \Rightarrow R_2 = 67,95V / 4A$

$\boxed{R_2 = 16,94\,\Omega}$

II

Datos

$RT = 8\Omega$

$R = 10\Omega$

$R_x = ?$

Hallar R_x

$R_T = \frac{R_x \times R}{R_x + R}$

~~$R_x = \frac{8 \times 10}{10+8}$~~ → ~~$8\Omega$~~

~~$R_x = 4\Omega$~~

$RT = \frac{10Rx}{10+Rx}$

$\boxed{Rx = 40\Omega}$

$8(10+Rx) = 10Rx$

$80 + 8Rx = 10Rx$

$8Rx - 10Rx = -80Rx$

$-2Rx = -80Rx$

III

Datos

$R_T = ?$

$I_T = ?$

$I_1 = ?$

$I_2 = ?$

$I_3 = ?$

$I_4 = ?$

$V_T = 50V$

$R_1 = 7\Omega$

$R_2 = 5\Omega$

$R_3 = 6\Omega$

$R_4 = 1\Omega$

Hallar R_T

$$\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} + \frac{1}{R_4}$$

$$\frac{1}{R_T} = \frac{1}{7} + \frac{1}{5} + \frac{1}{6} + \frac{1}{1}$$

$$\frac{1}{R_1} = \frac{30 + 42 + 35 + 210}{210}$$

$$\frac{1}{R_T} = \frac{317}{210}$$

$$317 R_T = 210$$

$$R_T = 210/317$$

$$\boxed{R_T = 0,66\Omega}$$

Hallar I_T

$$I_T = V_T / R_T \Rightarrow \boxed{I_T = 73,76A}$$

credeal

Hallar I_1

$I_1 = V_1 / R_1 \Rightarrow$ **$I_1 = 7,14A$**

Hallar I_2

$I_2 = \frac{V_2}{R_2} \Rightarrow I_2 = \frac{50V}{5}$

$I_2 = 10A$

Hallar I_3

$I_3 = \frac{V_3}{R_3} \Rightarrow \frac{50V}{6\Omega}$

$I_3 = 8,33A$

Hallar I_4

$I_4 = \frac{V_4}{R_4} \Rightarrow \frac{50V}{1}$

$I_4 = 50A$