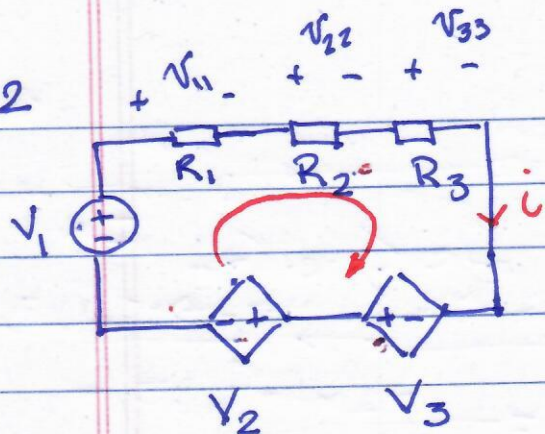


3.22



Datos

$$V_1 = 40V$$

$$V_2 = 4v_{11} - v_{22}$$

$$V_3 = 2v_{33} + v_{22}$$

$$R_1 = 5\Omega$$

$$R_2 = 25\Omega$$

$$R_3 = 20\Omega$$

① Aplicar una LKV para determinar la corriente que circula por cada elemento, considera que $v_{11} = iR_1$, $v_{22} = iR_2$, $v_{33} = iR_3$

$$-V_1 + v_{11} + v_{22} + v_{33} - V_3 + V_2 = 0$$

$$-40 + 5(i) + 25(i) + 20(i) - (2v_{33} + v_{22}) + 4v_{11} - v_{22} = 0$$

$$-40 + 50i - 2(20i) - 25i + 4(5i) - 25i = 0$$

$$-40 - 20i = 0$$

$$i = -2A$$

② Cálculo de potencia en cada elemento.

$$P_{R_1} = i^2 R_1 = (-2)^2 (5) = 20W$$

$$P_{R_2} = i^2 R_2 = (-2)^2 (25) = 100W$$

$$P_{R_3} = i^2 R_3 = (-2)^2 (20) = 80W$$

$$P_{V_1} = i V_1 = (-2)(-40) = 80W$$

$$P_{V_2} = i V_2 = (-2) [4(-2)(5) - (-2)(25)] = -20W$$

$$P_{V_3} = i V_3 = (-2) [2(-2)(20) + (-2)(25)] = -260W$$