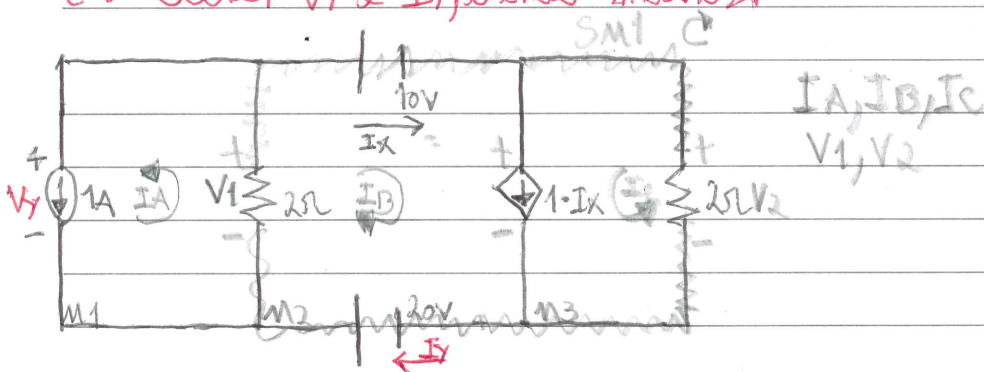


Análise de Circuitos elétricos GRR 20241512

E4 - Usando V_x e I_y , usando malhas:



$$1 = +I_A \quad (1)$$

$$1 I_x = 4 I_B + I_C \quad (2)$$

SM1: C

$$+10 + V_2 - 20 - V_1 = 0$$

$$V_2 - 10 - V_1 = 0 \quad (3)$$

$$I_y = +I_B$$

$$I_y = 4A \quad \checkmark$$

LTK M1: C

$$-V_1 + V_y = 0$$

$$V_y = V_1$$

$$V_y = -2I_A - 2I_B$$

$$V_y = -2 \cdot 1 - 2 \cdot 4$$

$$V_y = -10V \quad \checkmark$$

$$V_1 = 2 \cdot (-I_A - I_B) \rightarrow V_1 = -2I_A - 2I_B$$

$$V_2 = 2 \cdot (-I_C) \rightarrow V_2 = -2I_C$$

$$I_x = 4I_B$$

$$I_A = 1 \quad \checkmark$$

$$I_B = I_B + I_C$$

$$I_C = 0 \quad \checkmark$$

$$V_2 - 10 - V_1 = 0$$

$$-2I_C - 10 - (-2I_A - 2I_B) = 0$$

$$-2 \cdot 0 + 2I_A + 2I_B = 10$$

$$2I_A + 2I_B = 10$$

$$2 \cdot 1 + 2I_B = 10$$

$$2I_B = 8$$

$$I_B = 4A \quad \checkmark$$

$$I_y = 4A \quad \checkmark$$

$$V_y = -10V \quad \checkmark$$