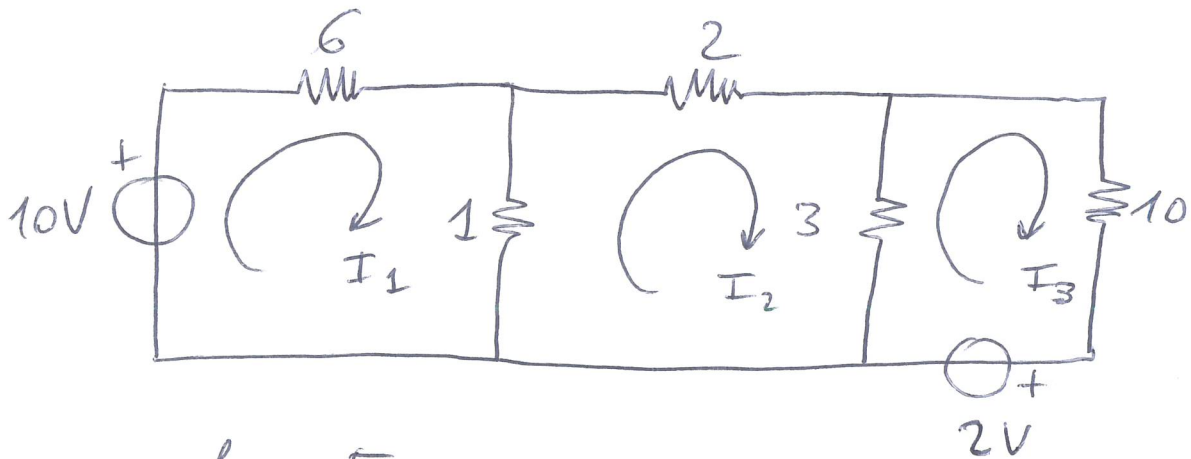


# ANALISI ALLE MAGLIE

1)



$$b = 5$$

$$n - 1 = 2$$

$$m = b - (n - 1) = 3$$

$$\begin{cases} 6I_1 + 1(I_1 - I_2) = 10 \\ 1(I_2 - I_1) + 2I_2 + 3(I_2 - I_3) = 0 \\ 3(I_3 - I_2) + 10I_3 = -2 \end{cases}$$

PURA

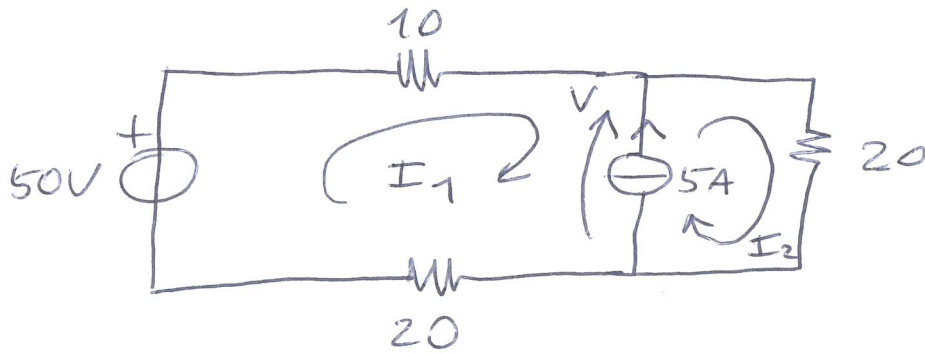
$$\begin{bmatrix} 7 & -1 & 0 \\ -1 & 6 & -3 \\ 0 & -3 & 13 \end{bmatrix} \begin{bmatrix} 10 \\ 0 \\ -2 \end{bmatrix}$$

$R^{mag}$                        $V_s$

$$I_1 = 1.45 \text{ A} ; I_2 = 0.19 \text{ A} ; I_3 = -0.11 \text{ A}$$

# ANALISI ALLE MESHIE

3)



$$\begin{cases} 10I_1 + V + 20I_1 = 50 \\ 20I_2 - V = 0 \\ I_2 - I_1 = 5 \end{cases}$$

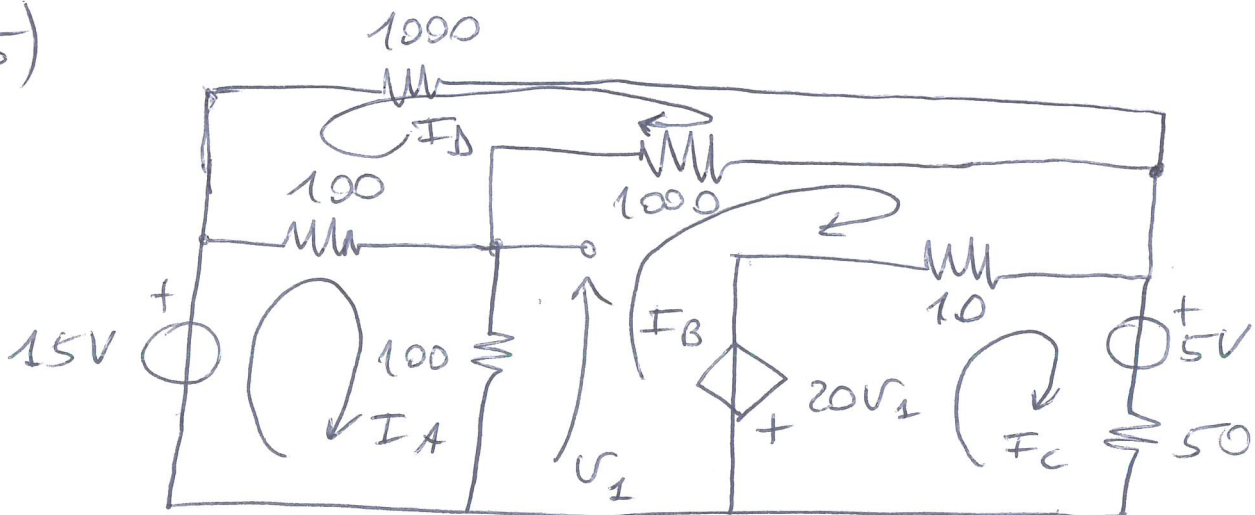
MODIFICATA

$$\begin{bmatrix} 30 & 0 & 1 \\ 0 & 20 & -1 \\ -1 & 1 & 0 \end{bmatrix} \begin{bmatrix} I_1 \\ I_2 \\ V \end{bmatrix} = \begin{bmatrix} 50 \\ 0 \\ 5 \end{bmatrix}$$

$$\begin{cases} I_1 = -1 \text{ A} \\ I_2 = 4 \text{ A} \\ V = 80 \text{ V} \end{cases}$$

# ANALISI ALLE MAGLIE

5)



$$100(I_A - I_B) + 100(I_A - I_D) = 15$$

$$100(I_B - I_A) + 1000(I_B - I_D) + 10(I_B - I_C) = 20V_1$$

$$20V_1 + 10(I_C - I_B) + 50I_C = -5$$

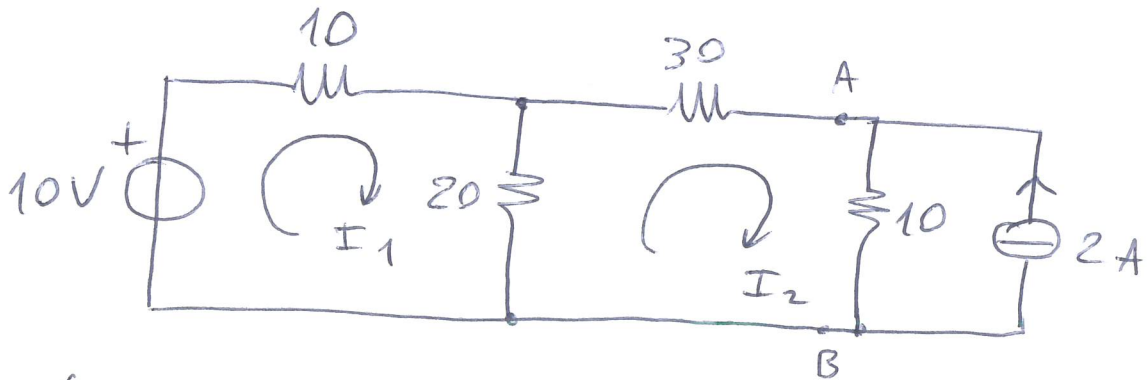
$$100(I_D - I_A) + 1000I_D + 1000(I_D - I_B) = 0$$

$$V_1 = 100(I_A - I_B)$$

PURA (MOD.)

# ANALISI ALLE MAGLIE

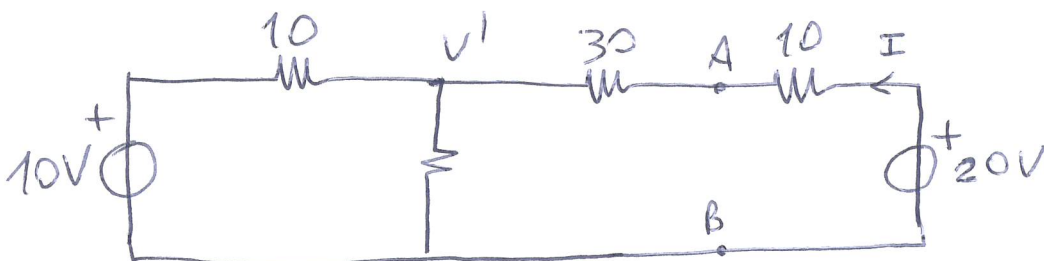
6)



$$\begin{cases} 10 I_1 + 20 (I_1 - I_2) = 10 \\ 20 (I_2 - I_1) + 30 I_2 + 10 (I_2 + 2) = 0 \end{cases}$$

$$\begin{bmatrix} 30 & -20 \\ -20 & 60 \end{bmatrix} \begin{bmatrix} I_1 \\ I_2 \end{bmatrix} = \begin{bmatrix} 10 \\ -20 \end{bmatrix} \quad \underline{\text{PURA}}$$

$$\begin{cases} I_1 = 0.1429 \text{ A} \\ I_2 = -0.2857 \text{ A} \end{cases} \quad V_{AB} = 10(I_2 + 2) = 17.14 \text{ V}$$



$$V' = \frac{\frac{10}{10} + \frac{20}{40}}{\frac{1}{10} + \frac{1}{20} + \frac{1}{40}} = \frac{60}{7} \text{ V}$$

$$I = \frac{20 - V'}{40} = \frac{2}{7} \text{ A}$$

$$V_{AB} = 20 - 10 I = \frac{120}{7} = 17.14 \text{ V}$$